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ABSTRACT

This report deals with an evaluation experiment which attempted to discover the relationship between specific types of teacher behavior and success in teaching as shown by student progress in relation to defined objectives. In 708 undergraduate classes at Kansas State University, students rated their progress in gaining factual knowledge, learning fundamental principles, applying principles to practical problems, understanding themselves, learning professional attitudes and behavior, developing skill in communication, discovering implications of the course for personal and professional conduct, and developing greater cultural understanding and appreciation. Fifty-eight items were used to evaluate teacher behavior and effectiveness, and chi-square analyses were performed on each item to determine significant differences between small, medium, and large classes. The findings indicated that at least 16 items appeared to be required in effective teaching, although they differed according to the size of class and type of objective. Broader application of this method of teacher evaluation is recommended by making the materials and computer programs available to other institutions. The results of the experiment are fully set out and discussed and appendixes give tables of norms and item analysis, as well as samples of the Faculty Information Form, test instrument, and the computer report to faculty members. (MBM)

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Identifying Effective Teaching Behaviors

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Summary

The major purpose of the study was to determine what specific instructional behaviors, if any, were related to success in teaching. Success was defined in terms of student progress on objectives valued by the instructor.

Students at Kansas State University supplied the basic data for 708 undergraduate classes. In each class, students indicated how much progress they had made on each of eight objectives. They also described their instructor in terms of 58 behavioral items selected for their presumed relevance to teaching effectiveness.

Evidence supporting the validity of student self-ratings was reviewed. In addition, some indirect evidence was produced to show that the progress ratings in this study were made with acceptable validity.

Classes were sorted into large (50 or more students), medium, and small (fewer than 30 students). Separate analyses were made of large and small classes for each of eight objectives. A class was included in the analyses for a given objective only if the instructor indicated that the objective was "essential".

Classes of a given size for which a given objective was rated "essential" were sorted into one of six categories depending on the average progress rating on that objective. Chi-square analyses were performed on each of the 58 items descriptive of teacher behavior to determine if there were differences among classes which made different amounts of progress. Items which showed substantial linear relationships with progress ratings were retained to form empirical scales predictive of teaching success.

Findings. A number of specific items were found which were related to success (progress) on each objective for both large and small classes. A few items were selected regardless of objective or size of class; a few others were generally related to success in either small classes or large classes, but not both; and a number were related to success under some conditions (class size, objective) but not others. From these findings, it was concluded that there are some teaching procedures which are generally helpful, some others which are helpful with classes of a given size, and others which are helpful when a given objective is stressed. A comprehensive account of effective teaching behaviors appears to require at least 16 somewhat overlapping, yet distinct, descriptions.

The specific scales were cross-validated on new samples, and found to possess moderate to high predictive validity (r's with average progress ratings ranged from .50 to .83). Satisfactory reliabilities were obtained for all but very small classes.

The major use of the empirical scales should be in programs for instructional improvement. They will also be useful in future research related to teacher evaluation. The research model employed should be helpful in refining and expanding knowledge of how instruction can be made more effective.

Introduction

Evaluation is an essential element in a rational and planful society. It is a potent determinant of how we behave in our personal and professional lives, and it governs the great policy decisions of business, industry, government, and education. In small and large matters, those who make decisions do so on the basis of anticipated consequences.

The fact that it is basically judgmental makes evaluation a tricky enterprise. Not surprisingly, some are better evaluators than others. This simple fact can go a long way toward explaining why some people are happier than others, some football coaches recruit players with more potential than others, and some schools have better teachers than others.

In a rational society, a positive evaluation triggers activities designed to enhance the probability that the performance will be repeated. If the evaluator has poor judgment, he may encourage performances which more capable judges would regard as mediocre or poor. But if he has good judgment, he will nourish the effective and discourage the ineffective; and the enterprise he guides will become more successful as a result.

Some activities are easier to judge than others. A computer programmer can be evaluated fairly easily on the basis of how long he takes to solve a problem and how efficiently his program accomplishes its purpose. It is more difficult to evaluate a composer, for musical taste tends to be individualistic and popular (normative) judgments may shift considerably from one generation to the next.

Teaching has been one of those activities for which evaluation has been difficult. Its complexity has created enormous difficulties for those interested in evaluating it. While organization is often stressed as a key to successful teaching, the ability to improvise as unanticipated opportunities arise is also acknowledged as a positive attribute. Encouraging student involvement is believed to be important, but so is communicating knowledge. The need for intellectual rigor may compete with the need for a relaxed atmosphere. The line between "explaining clearly" and "helping students understand for themselves" is not an easy one to draw. These examples illustrate the difficulties in identifying effective teaching behaviors.

Beyond the question of whether the behavior is effective or not is the problem of knowing how frequently it occured in a given class. In higher education, it is extremely rare for a department head or dean to observe a faculty member in the classroom (Astin & Lee, 1967). In fact, such visits might be regarded as a threat to academic freedom. Even if this question was not at issue, academic administrators simply don't have time to visit classrooms even once, let alone the several times which would be necessary to obtain a representative sample of the faculty member's teaching performance.

One obvious solution is to use the students in the class as "reporters". Having observed the instructor for many hours, students should be in a position to make reasonably reliable reports about what the instructor did.

Students have served as reporters for many years. As a result, there are empirical answers to many of the questions which have been raised about such a procedure. For example:

1. Ratings are made with high reliability, especially if there are 25 raters or more. (Shock, Kelly, and Remmers, 1927).

2. Ratings are generally unrelated to the past grades of the student, his grade in the course he is rating, or his expected grade in that course. (Remmers, 1930; Elliott, 1950; Voeks and French, 1960; Garverdick and Carter, 1962). While this generalization is widely supported, minor departures are occasionally reported (e.g., Weaver, 1960; Garber, 1965).

3. Ratings tend to be quite stable over both short and long periods of time. The ratings by alumni and by current students of the same teachers have been shown to be in substantial agreement. (Bryan, 1966).

4. Generally, rank and/or experience bear a positive, albeit modest, relationship to effectiveness ratings (e.g., Langen, 1966; Remmers, 1968). In at least one study (Rayder, 1968), the academic department was a more influential variable.

While these findings are pertinent to some of the criticisms of student ratings, they don't answer the critic who insists that students are not qualified to evaluate his instructional skills. Certainly there is reason to doubt the student's ability to judge the instructor's mastery of the subject matter or the appropriateness of the topics he discusses or omits. But there is less reason to be skeptical of student descriptions of his instructional methods--the degree of organization in his presentation, his speaking style, his effort to evoke class discussion, etc. As noted earlier, such matters are reported reliably. And, it appears from Soloman's (1964) work, these reports give a fair representation to a teacher's classroom performance.

A more serious objection to student ratings concerns their relevance. Typically, rating scales consist of a number of characteristics believed to be symptomatic of effective teaching. The device developed by Renner (1967) is typical; it asks for ratings on 24 characteristics including sense of humor, personal appearance, clarity of explanations, and tendency to digress. While there is a substantial folklore that these characteristics are related to effective instruction, there is little or no substantive evidence which might refute a faculty member's contention that such items are irrelevant.

It is at this point that those who propose to evaluate instruction by the "model" approach are in difficulty. Scales which ask students to describe their teachers and then summarize these descriptions by an evaluative rating represent the epitome of the model approach. Each item on the scale presumably describes an element of successful teaching so that, taken together, these descriptions evaluate the instructor in terms of how closely he resembles the ideal teacher. But the "ideal" described is that of the scale's author or of the committee that advised him. The skeptic is seldom convinced that a given model is satisfactory or even that a single model can do justice to a diverse set of courses and circumstances.

There is an active school of thought which suggests that instruction might better be evaluated in terms of student progress on course objectives (e.g., Tyler, 1934). While this approach has proved controversial (e.g., Atkin, 1968; Popham, 1969), there is some promising evidence that student gains are greater when the teacher expects to be evaluated on the basis of those gains (Wittrock, 1962; McNeil, 1967). Certainly the logic is difficult to dispute. No serious instructor would claim that his course has no objectives. Probably, if he were convinced that proper measures of his objectives were obtainable, and if extraneous factors could be properly controlled, he would agree that progress on these objectives is a fair indication of his instructional effectiveness.

The technical problems inherent in this approach to evaluation are considerable. First, there is the basic problem of constructing an appraisal device which measures each instructional objective with satisfactory reliability and validity. While measurement authorities (e.g., Ebel, 1965) have demonstrated ingenious ways of appraising complex achievements, the ordinary teacher will be unlikely to develop such high level test construction skills or to find the time to produce such elegant examinations. The typical consequence is the production of imperfect tests which emphasize the more easily assessed types of cognitive development (i.e., factual knowledge, principles and theories, and applications). Seldom is any formal appraisal made of non-cognitive development even though the instructor may consider objectives in this domain (e.g., professional attitudes, "appreciation" of the work of professionals, "interest" in the field) to be of considerable importance.

Equally important is the fact that measures of "end-of-course" status, such as the final examination, reflect a number of characteristics other than teaching effectiveness. These other characteristics are so important that, unless they are properly controlled, it may be nearly impossible to establish thatinstructional skill is related to student achievement. In part, the depressing results of Dubin and Taveggia's (1968) summary of research on the comparative effectiveness of teaching methods may be explained by this failure to control extraneous factors. The most important of these factors are scholastic aptitude, previous achievement in the discipline and in supporting disciplines, personal interest in the subject, perceived relevance of the course for student goals, and academic motivation-persistence. These factors, taken together, account for such a significant proportion of the variation in student achievement that, unless they are controlled, variation due to teaching method or quality is almost impossible to detect.

Solving the problem of measuring student progress on relevant objectives is necessary before this method of evaluating instruction can be employed in research or administratively. Recently, an unusually simple solution has been offered; namely, ask the student. A self-rating of his progress on a variety of objectives relative to the progress he had made on other courses at the same institution has enormous practical advantages. It is extremely simple and economical. It provides for individual differences among courses, since ratings on objectives which are irrelevant to a given course can be ignored in judging how effectively it was taught. And it controls for the many confounding factors listed previously by focusing on intra-individual, rather than inter-individual, comparisons.

The chief drawback is the potential lack of validity in such self-ratings. There are a number of reasons to suspect that not all students are capable or willing to make an accurate self-appraisal. (e.g., [Combs et. al., 1963]). It would be difficult to justify using self-ratings to assign grades to individuals. But the proposal refers to the use of a class average to evaluate instructional effectiveness. Given two classes which stress the same objective, all that is required is that there be more true progress in the one with the higher average rating. Undoubtedly, some students will be too optimistic, some will be too pessimistic, some will be careless, and some will be mistaken. But if these errors are not systematic (i.e., if they occur in all classes in about the same proportion), and if there is at least a substantial minority who give responses which are reasonably accurate, then the difference in average ratings will still be meaningful.

There is considerable evidence bearing on the question. For example, a number of studies have shown that student estimates of their probable grade point average is about as predictive of first year performance as are college aptitude tests or high school rank. (e.g., Keefer, 1965). Other studies have shown that a self-rating of vocational interests is more predictive of future occupational choice than are interest test scores. (Holland & Lutz, 1968). Still other studies show that the amount of distortion which occurs in making self-reports is minimal even when there is considerable motivation to distort (Walsh, 1967; American College Testing Program, 1965); for example, both scholarship applicants and non-applicants report quite accurately the special honors and recognitions they have received.

Encouraging as these findings are, they are not directly related to the present question. A report by Soloman, Rosenberg, and Bezdek (1964) is of more direct relevance. A carefully constructed achievement examination was used to measure mastery of relevant factual information in 24 college classes in American Government. Pre- and posttests were administered, so that "gain" could be studied, thus controlling for aptitude and experience differences. At the end of the courses, students provided a number of self-ratings, including one on how much factual information they had learned. This rating correlated .52 with gain scores, indicating a substantial degree of overlap between the two. When considered with the other evidence on self-ratings and the minimal assumptions which must be met before these could be used in a program of instructional evaluation, there is reason to believe that this simple approach may have much to offer.

Having established a rationale for evaluating instruction on the basis of progress on relevant objectives, it is appropriate to review the purposes which such an evaluation might serve. At least three purposes are commonly cited. First, the administrator who must decide how rewards shall be distributed will hopefully want to make those decisions on the basis of merit. Second, student "consumers" increasingly insist that course and instructor evaluations are relevant to the choices they must make regarding academic experiences. Finally, the evaluation process should provide stimulation and guidance for those who seek to improve their teaching performance.

The first two of these purposes have been controversial. There has been a decided reluctance to make results available to administrators, and even more hesitancy to provide them to students. But the last purpose has been almost universally endorsed. Its achievement, however, is far from routine.

While student progress ratings have considerable promise as measures of teaching effectiveness, it seems doubtful that they would provide any worthwhile clues as to how a given performance may be improved. To learn that one has been relatively unsuccessful in accomplishing what he set out to accomplish may stimulate his interest in improving. But unless he knows how his approach differed from those of his more successful colleagues, he has no real way of knowing (or guessing) what changes he should make.

The problem is complicated by the fact that "teaching style" reflects both personality characteristics and professional methods or techniques. The interdependence of these variables is well established (e.g., Getzels and Jackson, 1963; Isaacson, McKeachie, and Milholland, 1963). There is some evidence that the teacher's personality characteristics may be more important than his techniques. (Paraskevopoulos, 1968; Williams, 1965), so that instructional improvement may be dependent on personality change or on a more complete understanding of the interplay between methods and personality.

Pragmatically, however, it seems unlikely that progress will be made if it requires an intimate examination of an instructor's personality. At this stage of development, it seems wiser to investigate the hypothesis that there are effective and ineffective teaching procedures. If such can be identified, they may constitute a basis for professional improvement which is considerably less threatening than is personality reorganization.

Methods

The logic of defining teaching effectiveness in terms of student progress on relevant objectives was sufficiently compelling to commit the investigation to that concept. And the use of student self-ratings as measures of progress on specific objectives was sufficiently promising that a commitment was made to that approach. The first problem, then was to select a set of objectives which might be used both to describe the instructor's emphasis and to obtain student progress ratings.

Selecting objectives. As a first step, a review was made of the two taxonomies of educational objectives (Bloom, 1956; Krathwohl, Bloom, & Masia, 1956). The classifications in these taxonomies were too elaborate to be used directly; neither students nor professors could be expected to respond meaningfully to such a detailed listing.

The possibility of synthesizing the specific objectives into a smaller set of general objectives was suggested by the work of Deshpande and Webb (1968). These investigators showed that a large number of specific objectives endorsed by the faculty of Georgia Institute of Technology could be reduced to a much smaller set of general objectives by factor analysis. On inspection, the Deshpande-Webb "factors" bore a close resemblance to several of the major classifications given in the taxonomies.

This correspondence encouraged us to prepare a list of general objectives which might be used to describe any undergraduate course. A tentative set of 11 major objectives was developed. This list was submitted to a group of five professors who had previously won outstanding teaching awards at Kansas State University. On the basis of their critiques, the list was reduced to six objectives. A further critique was offered by members of student-faculty committees on effective instruction in the colleges of Agriculture, Engineering, and Home Economics at Kansas State University. As a result of suggestions from these groups, two additional objectives were selected.

The set of eight objectives which survived this process are listed below.

1. Gaining factual knowledge (terminology, classifications, methods, trends).
2. Learning fundamental principles, generalizations, or theories.
3. Learning to apply principles to solve practical problems.
4. Understanding myself - my interests, talents, values, etc.
5. Learning attitudes and behavior characteristic of professionals in the field most closely related to this course.
6. Developing skill in effective communication.

7. Discovering the implications of the course material for my personal and professional conduct.
8. Gaining a broader understanding and appreciation of intellectual-cultural matters, (music, science, literature, etc.)

Four of these are clearly cognitive in nature--gaining factual knowledge, learning principles and theories, learning applications, and developing communication skills, Three are better classified as "affective"--self-understanding, learning professional attitudes and behaviors, and discovering the personal and professional implications of course material. The last objective appears to be both cognitive and affective, since it stresses understanding and appreciation of intellectual-cultural matters.

A rating was required of the relative importance of each objective from the point of view of the instructor. A simple three-point rating scale was devised ("Essential", "Important", "Of no more than minor importance") and incorporated into a specially constructed Faculty Information Form. (Appendix A).

To obtain student progress ratings, a five point scale was used. The student was asked to compare his progress in this course with that made in other courses he had taken at Kansas State University. Ratings varied from "1" (lowest 10 percent) to "5" (highest 10 percent).

Selecting teaching behaviors. The investigation sought not only to develop a dependable way of evaluating instruction but also to discover correlates of effectiveness which could provide insights into how improvements might be made. Do teachers whose students make considerable progress on a given objective behave differently in the classroom from those whose students make little progress?

Of course, the research hypothesis was that such differences did exist. Further, it was hypothesized that the specific behaviors correlated with effectiveness would vary depending on the teaching objective. To test these hypotheses and to fulfill the purpose of discovering clues as to how instruction could be improved, it was necessary to construct a device which would provide a suitable description of instructor behaviors.

A questionnaire approach was selected for reasons outlined earlier. An effort was made to write items which (a) represented a meaningful dimension along which instructors might vary, (b) gave evidence of being related to instructional effectiveness, and (c) described teacher behavior in sufficiently specific terms that, if it seemed desirable to alter the behavior, this could be communicated clearly.

Instruments used by other researchers were reviewed. Three appeared especially promising in terms of their comprehensiveness, specificity, and the thoroughness with which they have been examined statistically. These included the 72 item questionnaire developed by

Soloman (1966), the 46-item questionnaire developed by Isaacson et. al. (1964), and the 56-item device developed by Whitlock (1966). In each of these studies, factor analyses of the instrument have been performed. The factors identified, and the items loading heaviest on each, were compared for ostensible similarity and over-lap. By this process, 87 of the 174 items were eliminated as "redundant".

The remaining 87 were submitted to a second group of five faculty members who had won "outstanding teaching awards" at Kansas State University. They were asked to edit the items, identify remaining redundancies, suggest any types of potentially important behaviors which had been overlooked, and to delete items which they believed were irrelevant to teaching effectiveness. This process resulted in further editing of 32 items, elimination of 21, and suggestions for additional items having to do with characteristics of the course (assignments, examinations, etc.) rather than those of the instructor.

The remaining items were reduced to 36 on the basis of their relationship to a measure of "over-all teaching effectiveness". Items from the Isaacson et. al. inventory were retained if they consistently loaded on their "skill" factor. Solomon items were retained if they loaded on either of the two factors which differentiated his "effective" from "less effective" instructors. And Whitlock items were retained if they (a) differentiated faculty members nominated for teaching awards from those not nominated and (b) differentiated among the top and bottom 27 percent of the nominated instructors.

These 36 items, and the 30 items not selected, were presented to student-faculty committees on the improvement of instruction in three colleges at Kansas State University. These committees were invited to critique these items and suggest potentially useful additions. On the basis of their recommendations, six other items were selected. Four of these were related to "overall teaching effectiveness", though not to the degree required of the original 36 items.

On the recommendations of consulting students and faculty, a set of 16 additional items were constructed to describe the course. Four items were devoted to each of four aspects of the course--examinations, out-of-class assignments, textbooks, and the course content. These 16 items were all original and therefore could not meet the same selection standards employed with the other 42 items.

The Basic Instrument. An instrument called Student Reactions to Instruction and Courses was developed which included the objectives and teacher behavior items selected by the processes just described. Six other items were added to describe the student or to obtain some global ratings not of direct concern to this investigation.

The instrument was field tested in January, 1969, in 16 classes in the College of Agriculture. While no serious problems were encountered, the trial made three things clear. (1) Students responded more willingly and freely if the instructor were not involved in the administration. (2) The booklet-answer sheet arrangement was inefficient and unduly confusing. (3) Few students brought No. 2 pencils to class. Accordingly, plans were made to use student administrators, to develop a form which contained both the questions and the answer spaces on a single sheet, and to purchase large quantities of No. 2 pencils.

A copy of the instrument is in Appendix A.

Gaining faculty cooperation. The research plan required the collection of data from several hundred undergraduate classes. To gain faculty cooperation, the project was presented to the deans of the seven undergraduate colleges. Subsequently, presentations were made to the entire faculty in three of these, and over 90 percent of the faculty members in these colleges elected to participate. In a fourth college, a presentation to the student-faculty committee on effective instruction was followed by their recommendation for college-wide participation; over 90 percent of these faculty members cooperated. No direct contact was established with the faculty of a fifth college, but its administrative council endorsed the proposal and over 85 percent of its faculty participated.

In a sixth college, presentations were made to three departments, all of which participated at a 75 percent level or better. Three other departments participated at over a 90 percent level. In most of the remaining departments, between 40 and 65 percent of the faculty participated. Two departments declined to participate, although at least one individual in each of these departments made special arrangements to be included.

No faculty members in the seventh college participated, simply because they had already made plans to conduct their own college-wide "student evaluation".

Process. Once a faculty member volunteered, one Faculty Information Form (Appendix A) was mailed to him for each class. His answers were used for several purposes: to classify the course, to learn what objectives he sought to accomplish, to find out how many students were in his class, and to discover when and where the forms were to be administered.

Student administrators were recruited from dormitories, fraternal groups, student councils, student honorary groups, and student service clubs. Group training in proper administration technique was conducted, and assignments to individual classes were made.

Materials were prepared in packets at the Office of Educational Research. These packets were picked up by student administrators, along with a supply of pencils. Completed materials were checked in at the Office of Educational Research, and the answer sheets and Faculty Information Forms were collated for later processing and reporting. All testing was done in the last two weeks of the spring semester.

Analyses. Several types of analyses were needed. First, some summary of the results for an individual faculty member had to be prepared. A report was designed and a computer program written to produce it. The report contained four parts. Part I summarized results on the 40 items selected to describe relevant teaching behavior. These items were grouped on an a priori basis into one of six scales believed to represent major dimensions of the teaching process. The scales were labeled "Preparation and Organization", "Student Involvement", "Clarity of Communication", "Stimulation", "Speaking Style", and "Personalism". Each item was keyed in accordance with the expected behavior of "effective" teachers. Scores were obtained by dividing the number of answers which were in the keyed direction by the total number of responses and multiplying the result by 100.

Part II simply gave averages for each of the "progress" ratings. It also indicated the degree of importance attached to each objective by the instructor. A summary score, "Progress on relevant objectives", was computed by weighing the mean progress ratings by the importance ratings; if the objective was considered "essential", the progress rating was multiplied by 2, while multipliers of 1 and 0 were used for objectives rated "important" and "of no more than minor importance", respectively. The sum of these products was divided by the sum of the weights to obtain the score for "Progress on relevant objectives".

In Part III, results on four a priori course characteristics scales were reported. These scales were labeled "Examinations", "Assignments", "Textbook", and "Course Content". The scoring scheme was identical to that used for Part I.

Part IV provided an item analysis of the entire instrument.

For Parts I, II, and III, separate analyses were made for all students, for those with cumulative grade point averages of 2.5 or higher (2.0 = C; 3.0 = B), and for those who claimed at least average interest in the course. These analyses were designed to show instructors whether they were perceived differently by selected subgroups.

An example of this report is shown in Appendix B.

To provide a framework to interpret the faculty member's report, normative data were needed. Norms for the entire sample, for various teaching ranks, for several principal teaching methods, and for several combinations of class size and class level (upper or lower division) were prepared. See Appendix C.

As a check upon the assumption that student self-ratings of progress were made with acceptable validity, correlations were computed between instructor ratings of importance (range of 1 to 3) and average student ratings of progress (range of 1.2 to 4.9). If student ratings possess useful validity, and if teaching at Kansas State University is at least minimally successful, then these correlations should be positive. That is, more progress should be made in classes where a given objective is important than in classes where it is not.

To determine the relevance of the a priori teaching methods scores, multiple correlations were computed between these six independent variables and each of the eight criterion measures (average progress ratings).

The most important analyses were designed to determine the specific instructional behaviors which differentiated effective instructors from their less effective colleagues. The following scheme was employed.

1. All classes were sorted into one of three sizes--less than 30 students (small), 30-49 students (medium), and 50 or more students (large). This was done because logic suggested that size of class may condition which methods will be effective.

2. The instructors' ratings of the importance of the first objective (Gaining factual knowledge) were then considered. All small classes for which this objective was rated "Essential" were grouped together. Collectively, they were called Group A. A similar grouping was made for large classes (Group B). Medium sized classes were ignored, as were small and large classes where this objective was not rated "Essential".

3. The classes in Group A were numbered consecutively. Odd-numbered classes were placed in the test-development group, Group A-1. Even numbered classes were placed in the cross-validation group, Group A-2. Groups B-1 and B-2 were formed in the same way from Group B.

4. Classes in Group A-1 were then sorted into one of six categories, depending on the average progress rating on "Gaining factual knowledge". Category 1 classes reported relatively large amounts of progress, while Categories 2 through 6 reported progressively less progress on this objective. An identical process was followed for Group B-1.

5. The number and percent of students in each category who said "True" or "False" to each of the first 58 items on the instrument was then determined. Chi squares and corrected contingency coefficients were computed. An item was retained if (a) a linear trend was apparent, such that the percentage saying "True" regularly increased or decreased from Category 1 through Category 6, (b) if the chi square value were significant beyond the .001 level, and (c) if the corrected contingency coefficient was at least .25

6. This process was repeated for objectives 2 through 8, so that a total of 16 item analyses were performed.

These item analyses resulted in the construction of 16 empirical scales--a separate scale for large and small classes for each of the eight objectives. The cross-validation classes (those in Groups A-2, B-2, etc.) were then scored on these special scales. These scores were correlated with average progress ratings. Resulting correlations were compared with the simple correlation between total methods score and average progress ratings to determine whether the empirical scales possessed any special value in identifying effective instructional methods.

Finally, the reliability of the various measures used in the study was estimated by using the medium-sized classes. For each such class, students were numbered consecutively. Scores were then obtained separately for odd-numbered and even-numbered students. These scores were correlated, and the results stepped-up or stepped-down by standard formulas to estimate the reliability of each measure for a given number of student observers.

Results

The results will be presented in several sections corresponding to the various analyses described in the preceding section.

1. Descriptive results.

The report to the individual faculty member was described earlier. A total of 708 such reports were issued. Of these, 643 summarized the responses for at least 10 students. The 65 classes for which reports were based on fewer than 10 students were excluded from the analyses reported in this section.

During the course of gathering data, the investigator became aware of a possible flaw in planning. Visits to several classes in the creative and performing arts (art, architecture, music, fashion design) made it clear that the special procedures and concerns of those classes had not been considered in constructing the data collection devices. It seemed plausible that results for these "studio" type courses might be noticeably different than for more typical courses.

To investigate this possibility, some descriptive statistics were prepared for the 37 studio courses and the 606 non-studio courses. Table 1 shows the central tendencies and variability for the 10 *a priori* scales descriptive of teaching methods and course characteristics. Some obvious differences exist. Studio courses generally earned lower scores on "Preparation and Organization" and higher scores on "Student Involvement", suggesting different emphases on methods. Studio courses

Table 1

Means and Standard Deviations on Ten *A Priori* Scales Describing Teaching Methods and Courses

	Non-studio courses (N=606)		Studio courses (N=37)	
Scale	Mean	s.d.	Mean	s.d.
Preparation & Org.	82.9	14.7	75.4	18.9
Student Involv.	75.2	15.8	81.9	9.5
Clarity of Comm.	75.4	16.2	71.2	20.5
Stimulation	76.8	15.5	74.5	11.1
Speaking Style	82.8	13.4	82.8	12.6
Personalism	80.7	10.8	84.0	8.6
Examinations	71.5	19.3	73.9	27.9
Assignments	89.2	6.5	78.1	25.2
Textbook	85.5	11.3	79.4	27.2
Content	83.8	8.8	77.2	25.0

also were generally rated lower on Assignments, Textbook, and Content; more striking were the differences in variability on these "course characteristic" measures.

As a second step in this investigation, the Faculty Information Forms for the two groups were reviewed to determine how frequently faculty members used the opportunity to identify additional objectives not covered by the standard list of eight. This was done for 45.9 percent of the studio courses, but only 3.1 percent of the non-studio courses.

A final check was made by computing for each group the zero-order correlations between the six teaching methods scores and the eight progress ratings available for each class. A difference in this pattern of correlations between the studio and non-studio courses would provide convincing evidence that the two should be treated separately.

Such was found to be the case. The results for the criterion concerned with "Implications for personal and professional conduct" illustrate this conclusion. These correlations are listed below.

	Studio Courses (N=37)	Non-Studio Courses (N=606)
Prep. & Org.	.44	.40
Student Involv.	.04	.50
Clarity Commun.	.29	.57
Stimulation	.50	.64
Speaking Style	-.06	.54
Personalism	.38	.58

In studio courses, Speaking Style and Student Involvement were unrelated to progress; yet in non-studio courses both correlated in the low .50's. From findings like these, it was concluded that procedures which lead to success in studio courses may be quite different from those that lead to success in more typical courses.

On the basis of this investigation, studio courses were eliminated from all subsequent analyses except the normative compilations. To include them with other courses might confound results and lead to unwarranted conclusions.

Descriptive results on the criterion measures for non-studio courses are shown in Table 2. Instructor's ratings of importance (3-point scale) and students' ratings of progress (5-point scale) are both summarized.

Obviously, not all objectives were considered of equal importance. Instructors in this sample generally emphasized the cognitive objectives of factual knowledge, principles and theories, and applications. They were least concerned about general-liberal education and self-understanding.

Table 2

Means, Standard Deviations, and Ranks of "Importance" and "Progress" Ratings for Eight Instructional Objectives (N=606 Classes)

Objective	Importance Mean	Importance s.d.	Progress Mean	Progress s.d.	Rank Imp.	Rank Progress
Factual knowl.	2.46	.65	3.55	.55	2	1
Princ, theories	2.60	.60	3.53	.51	1	2
Applications	2.32	.72	3.32	.61	3	5
Self-underst.	1.69	.74	3.00	.63	7	6
Prof. att, beh.	1.82	.73	3.30	.62	6	4
Eff. communic.	1.83	.76	2.90	.74	5	7
Impl. for conduct	2.18	.74	3.43	.60	4	3
Gen-lib. educ.	1.54	.71	2.62	.72	8	8

Generally, student progress ratings paralleled insturctors' ratings of importance. The Spearman rho between the ranked means was .79. Progress on self-understanding, communication skills, and general-liberal education averaged well below the average ratings for other objectives.

The standard deviations reported in Table 2 were encouraging. Obviously, there were wide differences among instructors on the importance they attached to each of the objectives. Similarly, classes differed widely on the amount of progress reported on each objective.

As a further test of the distinctiveness of the criterion variables, correlations among instructors' ratings of importance were computed. Similarly, correlations were computed among students' ratings of progress. Results are shown in Table 3.

From these results, it appears that instructors generally considered each of the eight criteria as a separate and distinct objective. There was a tendency for four criteria--professional attitudes and behavior, self-understanding, communication skills, and implications for personal and professional behavior--to covary positively, but these relationships were not high enough to suggest that meaningful distinctions were not made.

Table 3

Intercorrelations* Among Progress Ratings and Among Importance Ratings for Eight Instructional Objectives (N=606)

	Criterion							
	1	2	3	4	5	6	7	8
1	-	80	57	36	41	24	47	35
2	31	-	73	52	50	38	59	40
3	08	30	-	54	56	41	69	05
4	-19	-11	03	-	72	74	78	50
5	01	01	14	33	-	66	83	30
6	-09	-10	08	38	28	-	73	49
7	-04	02	17	41	37	21	-	33
8	-19	-01	-11	17	-01	08	11	-

Note: Decimals omitted
*Data for progress ratings appear above the diagonal; those for importance ratings appear below the diagonal.

Key to criterion variables
1 = Factual knowledge
2 = Principles, theories
3 = Applications
4 = Self-understand.
5 = Prof. att, beh.
6 = Eff. communic.
7 = Impl. for conduct
8 = Gen-lib educ.

Student ratings of progress were intercorrelated at a much higher level. Especially high correlations were obtained among the same four criteria described above for faculty rankings. And students tended to give similar ratings to "factual knowledge" and "principles, theories". While progress in a course may be quite general, as suggested by these correlations, it seems more likely that the halo effect is operating. Students probably responded both to the general feeling they had toward the course and to the specific types of progress they were asked to consider. If their general feeling was not considered, the overall level of the correlations should have been lower; if they had made no discrimination among criteria, these correlations should have been higher.

The results described above provided no reason to believe that the general research plan needed to be modified except for the exclusion of studio courses.

2. Normative data.

Various types of norms were prepared, primarily to assist the individual faculty member in interpreting his report. The normative analyses provided some information of incidental interest regarding differences among teaching ranks, principal teaching methods, and upper- and lower-division courses of various sizes. These differences are examined in Tables 4, 5, and 6.

Table 4

Median Scores for Various Groups on the Teaching Methods Scales

Rank	Prep & Org.	Stud. Involv.	Clar. Comm.	Stimulation	Spkg Style	Personalism	Total
Professors	88	77	80	82	86	84	81
Assoc. Prof.	87	77	76	80	83	81	78
Ass't Prof.	87	79	78	78	86	82	81
Instructor	89	82	82	81	88	85	83
Lower Ranks	81	83	84	72	89	86	83
Teaching Method							
Lecture	88	72	76	79	83	81	79
Recitation	86	86	82	83	91	84	85
Lab-Demon.	86	81	80	76	86	85	81
Lab-Recit.	87	84	80	81	87	84	83
Size-Level							
Large-lower	89	67	79	83	85	82	82
Med-Lower	88	73	73	80	84	80	80
Small-Lower	88	80	81	77	86	84	82
Large-Upper	86	70	76	84	86	83	79
Med-Upper	83	79	74	78	82	78	78
Small-Upper	86	85	80	82	88	84	83

Table 5

Median Scores for Various Groups on the Course Characteristics Scales

Rank	Exams	Assignments	Text	Content
Professor	78	91	89	85
Assoc. Prof.	70	90	80	84
Asst. Prof.	72	90	88	85
Instructor	77	89	89	85
Lower Ranks	81	88	86	84
Teaching Method				
Lecture	72	90	87	76
Recitation	84	91	89	87
Lab-Demon.	75	88	87	83
Lab-Recit.	75	91	89	85
Size-Level				
Large-Lower	67	88	88	84
Med-Lower	62	88	89	86

Table 5 (Cont.)

Size-Level	Scale			
	Exams	Assignments	Text	Content
Small-Lower	74	90	88	85
Large-Upper	72	91	88	75
Med-Upper	76	90	86	82
Small-Upper	84	90	89	89

Table 6

Median Progress Ratings for Various Groups
On Course Objectives

	Objective*								
Rank	1	2	3	4	5	6	7	8	Prog. Rel. Objectives
Professor	3.7	3.6	3.4	3.1	3.4	2.7	3.5	2.6	3.5
Assoc. Prof.	3.6	3.5	3.3	2.9	3.4	2.8	3.4	2.5	3.4
Asst. Prof.	3.4	3.4	3.3	3.0	3.4	2.9	3.5	2.5	3.4
Instructor	3.6	3.6	3.4	3.1	3.3	2.9	3.5	2.6	3.5
Lower Ranks	3.6	3.6	3.3	2.9	3.1	2.8	3.3	2.5	3.5
Teaching Method									
Lecture	3.6	3.5	3.2	2.8	3.3	2.5	3.3	2.5	3.4
Recitation	3.6	3.6	3.5	3.2	3.4	3.4	3.5	2.7	3.6
Lab-Demon.	3.5	3.4	3.4	3.2	3.4	2.9	3.5	2.5	3.4
Lab-Recit.	3.4	3.4	3.3	3.0	3.6	3.1	3.5	2.4	3.4
Size-Level									
Large-Lower	3.6	3.5	3.1	2.7	3.2	2.4	3.1	2.7	3.3
Med-Lower	3.5	3.4	3.2	2.6	3.2	2.3	3.1	2.2	3.2
Small-Lower	3.5	3.4	3.3	3.0	3.3	2.8	3.4	2.5	3.4
Large-Upper	3.6	3.6	3.4	3.0	3.5	2.8	3.5	2.5	3.5
Med-Upper	3.3	3.5	3.3	2.8	3.4	2.8	3.5	2.5	3.4
Small-Upper	3.8	3.7	3.6	3.3	3.8	3.2	3.9	2.7	3.7

* 1 = Factual knowledge
2 = Principles, theories
3 = Applications
4 = Self-understanding
5 = Prof attitudes, behavior
6 = Communication skills
7 = Implications for conduct
8 = Gen-liberal education

Differences among ranks were largely trivial. The largest difference was on Examinations, where Associate Professors made the poorest showing. However, there was very little difference on the median progress ratings obtained by faculty members of various ranks.

Results for those employing different principal teaching methods gave a small but consistent advantage to the recitation method. Overall, the lecture method made the poorest showing. Expecially low scores for this method were obtained on the "Student Involvement" dimension, on "Examinations", and on increasing self-understanding and communication skills. For the most part, these apparent weaknesses of the lecture method were also the apparent strengths of the recitation method.

Generally, upper-level courses achieved more student involvement, offered more reasonable examinations, and produced more student progress on educational objectives than did lower-level courses. Since the differences on overall teaching methods were slight, it seems likely that the higher success (progress) rate of the advanced courses reflects the fact that they typically enroll students whose personal interests are congruent with the course content.

Size of class was apparently of more importance at the upper-level than at the lower-level. More progress was regularly reported in small classes than in larger classes at the upper-, but not the lower-, level. At both levels, there was more student involvement in small classes; examinations were also judged to be more adequate in small classes.

A complete set of norms is found in Appendix C.

3. Validity of Self-ratings of progress.

If the research plan was to succeed, it was essential that the average ratings of progress possess at least minimal validity. No direct test could be made of this basic assumption. An indirect test was applied, however.

The test involved correlating the progress ratings of each objective with the instructors' ratings of the importance of these objectives. A positive correlation should be obtained if the following assumptions are valid:

a. Teaching was effective at Kansas State University.
b. Faculty members gave careful attention to the identification of objectives for each class.
c. Student ratings of progress were valid.

If any of these assumptions is completely erroneous, there will be no correlation between student ratings of progress and instructor ratings of importance. To the extent that any of these assumptions is only partially true, the correlation between importance and progress will be lowered. Of course, this correlation will also be attenuated by the limited (3 point) range of importance ratings.

Results are shown in Table 7.

Table 7

Intercorrelations of Average Progress Ratings and Instructors' Ratings of Importance of Eight Objectives

		Progress Ratings							
		1	2	3	4	5	6	7	8
	1	20	01	02	-25	-09	-23	-08	-25
	2	22	18	12	-16	-08	-21	-07	-11
Instructor's Ratings of Importance	3	07	09	32	-01	-01	-03	08	-24
	4	-14	01	09	40	29	35	25	19
	5	-03	01	15	17	32	23	26	-07
	6	-06	00	05	20	18	50	24	17
	7	-02	-03	15	16	27	17	26	-02
	8	-02	-03	-21	-01	-10	-03	-16	40

Note: Decimals have been omitted.
Critical correlations are underlined.
N = 606 classes for which 10 or more student ratings were available. Studio classes were excluded. Correlations of .11 are significant at the 1% level of confidence.

Key to objectives:
1 = Factual knowledge
2 = Principles, theories, generalizations
3 = Applications
4 = Self-understanding
5 = Professional Attitudes, behaviors
6 = Effective communication
7 = Implications for personal-professional conduct
8 = General-liberal education

The eight critical correlations are underlined. All were significantly greater than zero (P<.01), ranging from .18 to .50; the average was .32. The 56 "irrelevant" correlations (progress on one objective *versus* importance on another) average +.02. These findings offer strong support for the contention that self-ratings of progress were made with acceptable validity.

4. *Prediction of progress from the methods scores.*

Each of the six *a priori* scales presumably described a dimension of instructional skill which was related to teaching effectiveness. The items were selected with this objective in mind. How well the scales achieved their purpose, and the relative importance of each as a predictor of success, was studied by a step-wise multiple regression procedure.

Table 8 gives the intercorrelations among the six scales and the zero-order correlation of each scale with each of the eight criteria. All correlations were positive; obviously, the scales were not measuring six *independent* dimensions of instruction. There was a very substantial

Table 8

Intercorrelations of Teaching Methods Scores
and Their Correlations with Average Progress Ratings

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Prep. & Org.	-					
(2) Student Involv.	12	-				
(3) Clar. Commun.	79	42	-			
(4) Stimulation	56	48	71	-		
(5) Speaking Style	59	49	80	76	-	
(6) Personalism	57	59	82	69	74	-
Fact. knowledge	58	18	63	55	48	47
Princ, theories	51	33	64	59	53	56
Applications	40	36	53	49	43	47
Self-underst.	31	54	50	62	54	56
Prof. att, beh.	38	48	53	65	52	57
Communication	29	61	49	55	51	52
Implic. for conduct	40	50	57	64	54	58
Gen-lib educ.	26	32	38	49	39	41

Note: Decimals have been omitted.
N = 606 classes for which 10 or more student ratings were available.
Studio classes were excluded. Correlations of .11 are significant at the 1% level of confidence.

overlap among Clarity of Communication, Speaking Style, and Personalism. In general, if an instructor demonstrated positive characteristics on one dimension, he demonstrated positive characteristics on all other dimensions.

In the lower part of Table 8, correlations of the a priori scales with mean progress ratings are shown. These correlations make the methods scales appear somewhat more distinctive than was apparent from their intercorrelations. For example, Student Involvement was correlated substantially with progress on communication skills, but bore only a slight relationship to progress on factual knowledge. The reverse was true for Preparation and Organization. Clarity of Communication correlated higher than the other scales with the first three (cognitive) objectives, while Stimulation appeared to be the most effective scale for predicting gains on the affective objectives.

Major results from the multiple regression analyses are shown in Table 9. Only beta weights which were significantly greater than zero ($P<.05$) were retained.

Table 9

Significant Beta Weights and Multiple Correlations for Each of Six Teaching Methods Scores Used to Predict Each of Eight Class Progress Ratings

	Teaching Methods Scores						
Class Progress Rating	Prep-Organ.	Student Involv.	Clar. Commun.	Stimulation	Spkg Style	Personalism	R
Factual knowl.	146	-096	480	312	-186	-	671
Princ. theories	-	-	440	275	-	-	665
Applications	-	144	431	233	-165	-	566
Self-und.	-	270	-	399	-	126	680
Prof. att. beh.	-	161	-	471	-	151	686
Eff. commun.	-	429	127	253	-	-	679
Impl. conduct	-	229	192	396	-	-	679
Gen-lib educ.	-	-	-	390	-	138	495

Note: Decimals have been omitted.
N = 606 classes for which 10 or more student ratings were available.

Each of the six scales made an independent contribution to the prediction of at least one criterion. The Stimulation scale was a useful predictor for all eight progress ratings, and was the most important predictor for four of them--the three affective criteria and the one criterion which had both affective and cognitive elements. Clarity of Communication contributed the most to the prediction of three cognitive criteria, while Student Involvement was the chief predictor of the fourth (Communication skills).

The high intercorrelation among the scales was responsible for three significant negative weights--one for Student Involvement and two for Speaking Style. In these instances, the scales with the negative beta weights acted as suppressor variables. Their overlap with one or more effective predictors of a given criterion made it possible to "suppress" some of the error variance of these variables, thus increasing their predictive potency.

5. Identifying effective teaching behaviors by item analysis. The method was described in the previous section. The purpose of these analyses was to determine empirically the specific behaviors (items) which were related to success on each objective for each size class. Because the number of cases available for each analysis was large, relatively minor departures from the distribution of responses expected under the null hypothesis would result in a rejection of that hypothesis. Since the identification of especially critical instructor behaviors was desired, the decision was made to accept only items displaying reasonably linear trends (regular progressions from Category 1 through Category 6) with corrected contingency coefficients of .25 or higher.

The detailed results for each item are given in Appendix D. In this section, only the items which were accepted are discussed.

a. General Results. There were a few items which tended to be selected regardless of the objective or size of class. These "general teaching effectiveness" items are described below. The median percents of Category 1 (high achieving) students and Category 6 (low achieving) students who responded "True" are given in parentheses.

15. He spoke with expressiveness and variety in tone of voice. (90-61)
17. His presentations were dry and dull. (8-40)
28. He stimulated students to intellectual effort beyond that required in most courses. (64-22)
34. He introduced stimulating ideas about the subject. (89-47)

These items suggest that effective teaching requires that the instructor make his course interesting to the students. What is of "obvious" interest to the specialist may be dry and dull to the student unless some display of excitement is apparent. It appears that an important key to successful teaching is the knack of transfering to students the faculty member's sense of commitment to his discipline. The faculty member who assumes his academic interests are shared by his students may neglect the importance of making his presentations lively, posing provocative questions, and making students aware of controversies within the discipline.

Several other items were generally characteristic of effective teaching in small classes. These are listed below, together with the median percent of high achievers (Category 1) and low achievers (Category 6) who said "true" to each item.

4. The instructor seemed to lack energy. (6-35)
5. The instructor answered student questions as completely as reasonable. (96-68)
9. He was often incoherent and/or vague in what he was saying. (12-40)
12. He changed his approach to meet new situations. (84-50)
16. He demonstrated the importance and significance of his subject matter. (93-58)
30. He understood student comments and questions even when these were not clearly expressed. (87-56)
42. He told the class when they had done a particularly good job. (84-50)
54. The instructor failed to make clear the relationship between this course and other courses. (12-42)

An examination of these items suggests several generalizations about small classes. The necessity for enthusiastic stimulation, noted as a general factor, is re-emphasized for small classes by Items 4 and 16. An energetic effort to communicate the importance of the subject is related to gains on pertinent objectives. In small classes especially, clarity of communication is essential; the instructor should be wary of vague responses (Item 9) which may put off, but not answer, student questions (Item 5). In this same connection, the logic of the course needs to be made plain to students (Items 31 and 54). The instructor's relationship to students apparently is important in small classes; he needs to listen carefully (Item 30), be sensitive to their needs for reward (Item 42), and take advantage of the opportunity small classes provide to be flexible (Item 12).

For large classes, a fewer number of specific items were uniformly related to success:

2. There were discussions between teachers and students (as opposed to mere responses to questions). (91-40)
3. He explained course material clearly, and explanations were to the point. (91-55)
6. He adjusted his pace to the needs of the class. (84-51)
22. He sometimes presented material in a humorous way. (94-62)
27. He summarized material in a manner which aided retention. (84-47)

Interestingly, more progress was generally reported when the instructor displayed the "human interest" behaviors of using humor (Item 22), engaging in discussions with students (Item 2), and being sensitive to the speed with which the class assimilates material (Item 6). Apparently, these displays of concern are not only appreciated by students but help them make educational progress in large classes. An extra burden of clearly presenting relevant material (Item 3) and taking responsibility for summarizing key concepts (Item 27) falls on the instructor of large classes. Perhaps discussions can perform these jobs effectively for small classes, but in large classes the instructor needs to assume more responsibility.

Finally, there were several items which were unrelated to progress on any objective for either large or small classes.

11. He generally spoke too rapidly.
25. He failed to state clearly the course requirements and deadlines.
32. He became angry or sarcastic when corrected or challanged by a student.
36. He displayed favoritism.
38. He was available for individual help.
39. His speech was easy to understand.
40. He often dismissed class late.
44. The instructor gave ample notice for lengthy assignments.
46. Too much of the course material repeated content of courses I had previously taken.
48. Out-of-class assignments were reasonable in length.

49. The textbook (or substitute reading materials) contained too little illustrative material.
52. Assigned readings were pertinent to the topics presented in class.
56. I usually had no difficulty in obtaining outside reading materials.
57. Reading materials (including text) were organized in a logical orderly fashion.

A probable explanation for the failure of these items is the general homogenity of the faculty in the practices these items describe. In every instance, over 80 percent of the students gave the same response ("True" for Items 38, 39, 44, 48, 52, 56, and 57; "False" for Items 11, 25, 32, 36, 40, 46, and 49). With such little variability in practice, it is not surprising that these questions were unrelated generally to progress ratings.

b. Specific Results. If an instructor wanted to increase his class's progress on a given objective (e.g. factual knowledge), what specific suggestions can be offered? In this section, we will review the particular items (over and beyond the general items already described) which differentiated "effective" and "less effective" instructors.

(1) Factual Knowledge

Listed below are the items selected for large classes, small classes, or both. Figures in parentheses show the percent of category 1 (high) and category 6 (low) students who responded "True".

(a) Items selected for both small and large classes.

3. He explained course material clearly, and explanations were to the point. (86-27, 94-32)[1]
4. The instructor seemed to lack energy. (6-46, 4-29)
5. The instructor answered student questions as completely as reasonable. (94-63, 97-66)
9. He was often incoherent and/or vague in what he was saying. (16-60, 7-62)
16. He demonstrated the importance and significance of his subject matter. (93-36), 96-61)
19. He made it clear how each topic fit into the course. (91-40, 91-58)
23. He lectured in a low monotone. (9-47, 3-33)
27. He summarized material in a manner which aided retention. (79-29, 84-35)
29. He lectured in a rambling fashion. (18-58, 10-51)

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[1] Percentages for small classes are shown first. Thus, for small classes, 86 percent of Category 1 students and 27 percent of Category 6 students answered "True"; for large classes, these figures were 94 and 32.

30. He understood student comments and questions even when these were not clearly expressed. (84-44, 91-49)
33. He failed to differentiate between significant and non-significant material. (19-54, 20-57)
42. He told the class when they had done a particularly good job. (83-40, 91-39)
54. The instructor failed to make clear the relationship between this course and other courses. (14-44, 9-47)

(b) Items selected only for small classes.

1. The instructor seemed to have a well developed plan for each class session. (91-48)
7. Class time was seldom or never wasted. (86-50)
13. On several occasions, he seemed unprepared for class. (10-40)
37. He related course material to real life situations. (92-27)
43. The examinations gave a balanced coverage to major topics. (90-44)
50. Too much time was spent on too few topics--the course needs more breadth. (4-44)
53. Assigned readings (including text) were reasonably clear and understandable. (92-55)

(c) Items selected only for large classes.

24. He explained the reasons for his criticisms of students' academic performance. (76-45)
35. He repeated material to the point of monotony. (3-41)
41. He used leading questions to force students to answer their own questions. (61-26)
47. Examination questions were often unclear. (20-66)

A total of 13 items were selected for both large and small classes, 7 only for small classes, and 4 only for large classes. Thus there were a number of techniques which were consistently associated with student progress on this objective, regardless of class size.

Of the 13 common items, 7 were cited earlier as practices which are generally effective in small classes (Items 4, 5, 9, 16, 30, 42, and 54), while 2 were included among the generally effective methods for large classes (Items 3 and 27). Comments made earlier about these items need not be repeated here. The four items not on previous lists (19, 23, 29, and 33) emphasize the points about communicating the course's rationale (cf. Items 19, 31, and 54), making presentations crisp and clear (cf. Items 23, 29, and 9), and providing appropriate distinctions between major and minor points (Item 33). In brief, the techniques which are related to gains in factual knowledge in both large and small classes stress a "no-nonsense", rational approach.

In small classes, this approach is further underscored by Items 1, 7, 13, and 53 (planning each session, refraining from wasting time, being prepared, and using especially clear reading material). Student gains were also higher for instructors who "balanced" the breadth of topics (Item 50) and their coverage on examinations (Item 43). Relating course material to real life situations were also beneficial in small classes (Item 37).

For large classes, the "no-nonsense" orientation was emphasized by results for Items 35 (monotonous repetition) and 47 (ambiguous examination questions). Two other items (24, 41) confirm the earlier finding that, especially for large classes, efforts to "humanize" pay off in student gains.

(2) Principles, Generalizations, Theories

Items related to gains on this objective for large, small, and both large and small classes (in addition to the generally effective items) are shown below. Again, the figures in parentheses show the percent of high (Category 1) and low (Category 6) achievers who answered "True".

(a) Items selected for both small and large classes.

3. He explained course material clearly, and explanations were to the point. (87-55, 91-65)
5. The instructor answered student questions as completely as reasonable. (94-79, 96-73)
6. He adjusted his pace to the needs of the class. (86-57, 72-55)
9. He was often incoherent or vague in what he was saying. (12-45, 9-41)
12. He changed his approach to meet new situations. (86-36, 80-51)
22. He sometimes presented material in a humorous way. (78-44, 80-58)
29. He lectured in a rambling fashion. (16-41, 10-31)
30. He understood student comments and questions even when these were not clearly expressed. (85-55, 87-52)
33. He failed to differentiate between significant and non-significant material. (17-53, 19-44)
51. Examinations stressed memorization of information for which later recall seems unreasonable. (20-53, 26-53)
55. Examination questions were frequently too detailed and picky. (24-51, 26-63)

(b) Items selected for small classes only.

7. Class time was seldom or never wasted. (83-46)
10. The instructor seemed enthusiastic about the subject matter. (95-72)

19. He made it clear how each topic fit into the course. (87-54)
23. He lectured in a low monotone. (10-49)

(c) Items selected for large classes only.
26. He attempted to induce silent students to participate. (38-12)
35. He repeated material to the point of monotony. (6-26)
41. He used leading questions to force students to answer their own questions. (55-17)
47. Examination questions were often unclear. (15-52)

Again, there was considerable overlap among large and small classes in the specific techniques associated with student progress; 11 items were selected for both, while there were 4 items which were specific to each size class.

Seven of theeleven items selected for both large and small classes were included on the "generally effective" list for one or the other size (Items 3, 5, 6, 9, 12, 22, and 30). These items, together with the other generally effective items discussed previously, make it clear that students learn more about principles, theories, and generalizations when their instructors make the material stimulating, present it clearly and coherently, and are flexible in their efforts to improve it.

The importance of crisp presentations is underlined by the inclusion of Item 29 (rambling). And while gains on both this objective and factual knowledge are facilitated by a consistent differentiation between major and minor points (Item 33), progress on principles, theories, and generalizations was also related to examination practices. More gain was reported when examinations did not place unreasonable emphasis on memorization (Item 51) and were not considered detailed and picky (Item 55).

Items applicable to small classes only simply embellish parts of the description already provided. In particular, the instructor's enthusiasm (Item 10), organization (Items 7 and 19), and clear modulation (Item 23) all were related to positive changes.

In large classes, there was a re-emphasis on the need to be sensitive to the human aspects of teaching (encouraging silent students, Item 26; leading students to answer their own questions, Item 41). Other than this, the items highlight the importance of good examinations (Item 47) and of sensing the class's level of mastery so that monotonous repetition (Item 35) is avoided.

(3) Learning to apply principles to solve practical problems.
Other than items generally descriptive of effective teaching for large classes, small classes, or both (see previous discussion), there

were very few items selected for this objective. The one additional item selected for both large and small classes ("The instructor failed to make clear the relationship between this course and other courses") is also included on the "generally effective" list for small classes. The logic of its inclusion for large classes as well on this objective is obvious.

The only additional item for small classes was Item 37, "He related course material to real life situations" (95-71). Again, for an objective concerned with applications, this outcome was not unanticipated.

For large classes, six additional items were selected.

14. Students made comments to the instructor without being asked. (60-37)
21. He presented examples of what he wanted by way of homework, papers, etc. (75-34)
43. The examinations gave a balanced coverage to major topics. (88-55)
51. Examinations stressed memorization of information for which later recall seems unreasonable. (15-41, 11-63)
55. Examination questions were frequently too detailed and picky. (21-75)
58. There were too many topics to understand any of them well. (22-81)

The importance of an atmosphere in which students will participate at least minimally, even in a large class, is suggested again by Item 14. Items about examinations (43, 51, 55) suggest that instructors of large classes who stress applications as an objective need to exercise special care in constructing examinations which call for applications rather than detailed memorization. Students also made better progress when the number of topics was relatively small (Item 58) and when the instructor offered examples of what he expected (Item 21).

(4) Understanding myself--my interests, talents, values, etc.
Of the eight objectives, this one was seventh in popularity among instructors. In general, students reported less gain in this area than in the three previously reviewed, though there were a number of notable exceptions.

For the most part, items which were related to student progress on this objective were equally effective for large and small classes. In addition to the items which were generally effective for all objectives, these included:

2. There were discussions between teachers and students (as opposed to mere responses to questions). (95-68, 91-41)
8. The instructor encouraged students to express themselves freely and openly. (96-76, 100-59)

12. He changed his approach to meet new situations. (88-51, 90-58)
20. He encouraged student comments even when these turned out to be incorrect or irrelevant. (91-70, 88-52)
26. He attempted to induce silent students to participate. (71-41, 51-15)
30. He understood student comments and suggestions even when these were not clearly expressed. (89-58, 89-71)
35. He repeated material to the point of monotony. (7-27, 3-26)
51. Examinations stressed memorization of information for which later recall seems unreasonable. (15-41, 11-63)
55. Examination questions were frequently too detailed or picky. (23-46, 20-57)

In addition, two items were selected for small classes only.
10. The instructor seemed enthusiastic about the subject matter. (96-77)
21. He presented examples of what he wanted by way of homework, papers, etc. (79-52)

Another two items were related to progress on self-understanding only for large classes.
14. Students made comments to the instructor without being asked. (60-37)
58. There were too many topics to understand any of them well. (15-45)

Obviously, on this objective, student involvement in the educational process is related to effectiveness (Items 2, 8, 14, 20, 26, and 30). This was true to a degree for other objectives also; but for self-understanding, student participation was especially critical. This may have to be at the expense of good organization and clear communication; Items 3, 9, and 31, generally effective, were not selected for this objective.

Instructor flexibility (Item 12) and enthusiasm (Item 10) were also positively related to self-understanding. And students reported more progress if examinations were not picky and unreasonably memory-oriented (Items 51 and 55).

In small classes, examples of the instructor's expectations were conducive to student progress (Item 21), while in large classes, especially, effective instructors curtailed the number of topics to be covered. (Item 58).

(5) Learning attitudes and behaviors characteristic of professionals in the field most closely related to this course.
Items selected for both large and small classes, for small classes only, and for large classes only are shown on the following page. Again, these lists omit the items which were generally effective for all objectives.

(a) Items selected for both small and large classes.

3. He explained course material clearly, and explanations were to the point. (88-44, 90-60)
4. The instructor seemed to lack energy. (6-35, 4-20)
6. He adjusted his pace to the needs of the class. (90-49, 87-46)
9. He was often incoherent or vague in what he was saying. (10-50, 7-35)
12. He changed his approach to meet new situations. (86-48, 92-57)
16. He demonstrated the importance and significance of his subject matter. (95-57, 96-80)
19. He made it clear how each topic fit into the course. (90-53, 89-64)
23. He lectured in a low monotone. (5-36, 2-25)
27. He summarized material in a manner which aided retention. (81-37, 85-53)
29. He lectured in a rambling fashion. (16-49, 10-40)
30. He understood student comments and questions even when these were not clearly expressed. (90-56, 91-65)
35. He repeated material to the point of monotony. (6-26, 3-23)
42. He told the class when they had done a particularly good job. (86-50, 88-43)
54. The instructor failed to make clear the relationship between this course and other courses. (10-44, 7-32)

(b) Items selected for small classes only.

1. The instructor seemed to have a well developed plan for each class session. (90-59)
7. Class time was seldom wasted. (77-41)
13. On several occasions, he seemed unprepared for class. (11-38)
26. He attempted to induce silent students to participate. (67-41)
33. He failed to differentiate between significant and nonsignificant material. (12-50)
37. He related course material to real life situations. (97-61)

(c) Items selected for large classes only.

8. The instructor encouraged students to express themselves freely and openly. (96-60)
14. Students made comments to the instructor without being asked. (74-33)
58. There were too many topics to understand any of them well. (15-45)

Perhaps the most remarkable aspect of these results is their nearly complete overlap with those obtained for the factual knowledge objective. Of the 14 items selected for both small and large classes, 11 were also selected for the factual knowledge classes. What was said earlier about that objective need not be repeated.

This overlap was also apparent in the items selected for small classes. Five of the six were on the factual knowledge list. On the other hand, the three items selected as applicable to large classes only were not related to progress on factual knowledge.

A few items were related to progress on only one of these "overlapping" objectives. Small classes gained more factual knowledge if the course covered more, rather than fewer, topics, if the examinations gave a balanced coverage to these topics, and if the text was clear and readable. These items were not related to progress in developing professional attitudes and behaviors. For one item, this situation was reversed; attempting to induce silent students to participate (Item 26) was associated with gains on professional attitudes and behaviors, but not factual knowledge, for small classes.

In large classes, it was beneficial to encourage student expression of opinion for the professional attitude and behavior objective, but not for factual knowledge (Items 8 and 14).[2] The other differences in items involved Items 58 (too many topics) and 47 (exam questions unclear). The former was related to success on professional attitudes and behavior but not factual knowledge, while the reverse situation obtained on the latter.

(6) Developing skill in effective communication.

Though very few English composition or oral communication courses were included in the survey, a number of instructors gave "essential" or "important" ratings to this objective. This was particularly true in small, upperclass courses.

While a number of items were related to progress on this objective, the majority of these were cited earlier as descriptive of effective instruction in general.

Besides the four items which were related to progress on almost all objectives, six additional items were related to gains in effective communication for both small and large classes.

2. There were discussions between teachers and students (as opposed to mere responses to questions). (93-61, 86-54)

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[2] Note, however, that generally efforts to involve students were associated with success in large classes; this was true for factual knowledge as well as other objectives.

9. He was often incoherent and/or vague in what he was saying (12-35, 5-31)
18. He requested and obtained students' questions and reactions. (94-75, 96-70)
22. He sometimes presented material in a humorous way. (88-58, 97-78)
24. He explained the reasons for his criticisms of students' academic performance. (83-59, 79-50)
41. He used leading questions to force students to answer their own questions. (66-47, 77-40)

In addition, five items were related to progress in small classes on this objective but not on the majority of objectives.

8. The instructor encouraged students to express themselves freely and openly. (94-74)
26. He attempted to induce silent students to participate. (75-36)
33. He failed to differentiate between significant and nonsignificant material. (17-32)
51. Examinations stressed memorization of information for which later recall seems unreasonable. (18-46)
55. Examination questions were frequently too detailed and picky. (22-46)

Besides the generally effective items, only two additions were selected for large classes on this objective.

14. Students made comments to the instructor without being asked, (80-44)
47. Examination questions were often unclear. (19-43)

As was true for self-understanding, student involvement appears to be a key to success on this objective. Items 2, 18, and 41, which were selected for both small and large classes, all relate to this matter, as do Items 8 and 26 (selected for small classes) and Item 14 (selected for large classes). The instructor's role as a critic (Item 24) appears to be important in helping students improve their communication skills. Clarity in his own communication (Item 9) and the use of humor (Item 22) were also related to progress for both large and small classes.

In small classes, students made less progress if their instructors failed to give appropriate emphasis to major concepts (Items 33, 51, and 55). Unclear examination questions (Item 47) had a similar negative effect for large classes.

(7) Discovering the implications of the course material for personal and professional conduct.

This objective stresses the importance of making the course personally meaningful to the individual student. It was a relatively popular objective with instructors of both small and large classes.

The analyses for this objective were relatively unproductive. Of the 13 items selected for small classes, 9 were included on the lists of generally effective items, while 3 of the items on these general lists were not selected for this objective. For large classes, 3 of the 10 items which were selected were on the generally effective lists, while 6 items on the latter were not selected in the large class analyses. As a result, a large number of exceptions to previous generalizations must be made. Therefore, we will depart from the practice of omitting the generally effective items and will list all items chosen for this objective.

(a) Items selected for both small and large classes.

17. His presentations were dry and dull. (9-45, 3-28)
24. He explained the reasons for his criticisms of students' academic performance. (83-59, 79-50)
45. The textbook (or substitute reading materials) seemed out-of-date to me. (9-22, 9-32)
54. The instructor failed to make clear the relationship between this course and other courses. (12-32, 9-24)

(b) Items selected for small classes only.

5. The instructor answered student questions as completely as reasonable. (97-83)
9. He was often incoherent and/or vague in what he was saying. (10-36)
21. He presented examples of what he wanted by way of homework, papers, etc. (73-52)
28. He stimulated students to intellectual effort beyond that required by most courses. (56-22)
30. He understood student comments and questions even when these were not clearly expressed. (87-62)
31. He stated clearly the objectives of the course. (89-67)
34. He introduced stimulating ideas about the subject. (88-43)
35. He repeated material to the point of monotony. (5-24)
42. He told the class when they had done a particularly good job. (75-49)

(c) Items selected for large classes only.

2. There were discussions between teacher and students (as opposed to mere responses to questions). (91-40)
3. He explained course material clearly, and explanations were to the point. (92-79)
18. He requested and obtained students' questions and reactions. (94-58)
19. He made it clear how each topic fit into the course. (93-78)

29. He lectured in a rambling fashion. (6-35)
50. Too much time was spent on too few topics--the course needs more breadth. (4-28)

In small classes, gains were associated with stimulating presentations (Items 17, 28, 34, and 35), clarity of communication (Items 9, 21, 31, and 54), and an empathic concern for individual students (Items 5, 24, 30, and 42). Interestingly, this was the only objective where progress was related (negatively) to using an out-of-date text (Item 45).

Large classes were more likely to report gains if students were involved (Items 2 and 18), organization was apparent (Items 19, 50, and 54), and explanations were clear (Items 3, 24, and 29).

(8) Gaining a broader understanding and appreciation for intellectual-cultural matters. (music, science, literature, etc.).
The final objective is a broad statement of an objective usually considered crucial in a "general" or "liberal" education. Relatively few instructors rated it as important or essential, and student progress ratings were usually low. Relatively speaking, the objective was chosen as important much more often in large, lower-division courses than in other types of courses.

Items related to progress in both small and large classes included the four generally effective items (15, 17, 28, and 34) and two others:

3. He explained course materials clearly and explanations were to the point. (86-55, 86-63)
47. Examination questions were often unclear. (19-45, 14-42)

For small classes, only three additional items were selected. Seven of the eight generally effective items for small classes were rejected. The accepted items were:

1. The instructor seemed to have a well developed plan for each class session. (90-64)
9. He was often incoherent and/or vague in what he was saying. (14-37)
29. He lectured in a rambling fashion. (14-43)

In contrast, items generally effective for large classes were also effective for such classes on this objective. In addition, four other items were selected.

8. The instructor encouraged students to express themselves freely and openly. (96-70)
26. He attempted to induce silent students to participate. (45-20)
33. He failed to differentiate between significant and nonsignificant material. (22-41)
43. The examinations gave a balanced coverage to major topics. (91-74)

Thus, in both large and small classes, clarity of presentations (in class and in examinations) joined stimulation and expressiveness as important qualities. In small classes, organization (Items 1 and 29) was also related to progress, while the clarity factor was underscored by Item 9 (incoherent, vague presentations).

Progress in large classes was facilitated especially by student participation (Items 8 and 26) and by providing proper distinctions between major and minor points (Items 33 and 43).

6. Cross Validation.

The technique for selecting items was designed to insure that only highly relevant behaviors would be identified. There remained the problem of estimating the validity of the entire set (scale) of items selected to predict a given criterion. The following procedure was used:

(1) Only cross-validation classes were considered. None of these had been used in the item analyses.

(2) For Group A-2 (cross-validation classes for which the instructor designated "factual knowledge" as an essential objective), each class was "scored" on the empirical scale developed from Group A-1. The score for a given class was

$$100 \times \frac{\text{number of responses in the keyed direction}}{\text{total number of responses}}$$

(3) A "Total Methods" score for each class was developed by averaging scores on the six a priori teaching methods scales.

(4) Scores on the empirical scale and on the total methods scale were correlated with average progress ratings.

This process was followed for each of 16 analyses. The results are shown in Table 10.

Items on the empirical scales were, with few exceptions, also included on the Total Methods scale. It is not surprising that the correlations between these two were uniformly high (range of .86 to .98, median of .95). In view of this overlap, it was encouraging to find that in 13 of the 16 comparisons, the empirical scale had the higher correlation with progress ratings. In brief, by examining relatively few instructor behaviors, it was possible to predict progress on relevant objectives at least as accurately as could be done by examining a broad range of behaviors. The empirical scales apparently were successful in focusing attention on the most critical instructional behaviors.

Table 10

Correlations of Empirical Scales and Total Methods Score with Progress Ratings in Cross-Validation Samples

Criterion	Large Classes Emp. Scale	 Total Methods	 N	Small Classes Emp. Scale	 Total Methods	 N
Factual knowledge	.729	.647	32	.500	.426	100
Prin., theories	.703	.630	46	.543	.515	112
Applications	.644	.674	31	.673	.626	83
Self-understanding	.623	.667	34	.691	.602	90
Prof.att.,behavior	.708	.648	44	.612	.666	104
Eff. Communic.	.829	.826	26	.669	.624	125
Implic.for conduct	.620	.559	22	.773	.701	60
Gen-lib educ.	.549	.467	38	.521	.481	72
Average	.676	.640		.623	.580	

Note: All correlations are significantly greater than zero (P<.01)

The level of predictive potency varied from .50 to .83. Only on the general-liberal education criterion ["Gaining a broad understanding and appreciation of intellectual-cultural matters (music, science, literature, etc.)"] were the correlations for both large and small classes below .60. For small classes, the empirical scales for "factual knowledge" and "principles, theories" correlated in the low .50's with progress ratings on these objectives.

The degree to which a class makes progress on a given objective is undoubtedly a function of many variables. Instructor work-load, the adequacy of his teaching facilities and equipment, the degree of congruence between student expectation and instructor objectives, instructor "personality" (warmth, rigidity, authenticity, etc.), and the presence or absence of disruptive or hostile students are a few such variables. The data of Table 10 establishes that the instructor behaviors reviewed by the instrument constructed for this investigation represent an important variable related to progress. The higher the correlation, the more influential this particular variable can be inferred to be.

7. Reliabilities

In estimating reliability, one wishes to know the extent of error variance present in a given measurement; that is, how similar would two or more "readings" of the same characteristic be? Most commonly, the reliability question refers to scores for a given individual.

In this investigation, the concern was with scores for a given class. The a priori scales, the empirical scale, and the progress ratings were all obtained by considering the responses of several students. It is the reliability of these "class scores" which is at issue.

To estimate reliabilities, classes were employed which had not been utilized in either the test development or cross-validation analyses. These were the "medium-sized" classes, enrolling from 30-49 students. Students in each such class were numbered consecutively. For each measure, two scores were obtained for each class--one for the odd-numbered and one for the even-numbered students. These two scores were correlated for the 184 classes. The results were taken as an estimate of the reliability of the various measures when the number of observers was equal to half of the average number included in these medium-sized classes. This estimate was stepped up or down in accordance with the Spearman-Brown prophecy formula (Nunnally, 1959) in order to estimate reliabilities for classes of 10, 25, 50, and 100 students.

Results are shown in Table 11.

Reliabilities of the empirical scales were slightly higher than those for the a priori methods scales, but not significantly so. If one accepts .90 as a reasonably satisfactory figure, about 20-25 raters would be needed for either of these sets of scales.

Scores on the four Course Characteristics scales were less reliable. The "Assignments" scale was so unstable that future reports should omit it. Unless there were 50 or more raters, scores on the other three scales also had undesirably low reliabilities.

Student Progress ratings were made with marginally satisfactory reliabilities. The overall measure ("Progress on Relevant Objectives") had satisfactory reliability when 20-25 student raters were used; ratings on individual objectives required 25-45 observations in order to achieve estimated reliability coefficients of .90 or higher.

Reliabilities of the major measures (Total Methods, specific empirical scales, and Progress, Relevant Objectives) center around .85 for 10 student observers. Therefore, results for classes with fewer than 10 would be too unreliable to make sound inferences. If 20 student observations are made, the most important measures will have satisfactory reliabilities (r's of .90 or higher). When 10-19 observations are made, the results should be interpreted with caution, since the reliabilities will probably be between .85 and .90.

For large classes it is not necessary to survey all students. A representative sample of 20 or 25 will provide a report with satisfactory reliability.

Table 11

Estimated Reliabilities of A Priori Scales,
Empirical Scales, and qrogress Ratings
for Various Numbers of Raters

	Number of Raters			
A Priori Scales	10	25	50	100
Prep. & Org.	.84	.93	.97	.98
St. Involv.	.84	.93	.97	.98
Clar. Comm.	.78	.91	.95	.97
Stimulation	.84	.93	.97	.98
Spk. Style	.81	.92	.96	.98
Personalism	.75	.89	.94	.97
Total Methods	.85	.94	.97	.98
Examinations	.73	.89	.93	.97
Assignments	.37	.60	.75	.86
Textbook	.61	.80	.89	.94
Content	.65	.83	.91	.95
Empirical Scales				
Fact. Knowl.-Large	.85	.94	.97	.98
Fact. Knowl.-Small	.85	.94	-	-
Princ. Theor.-Large	.86	.95	.97	.99
Princ. Theor.-Small	.86	.94	-	-
Applic.-Large	.80	.91	.95	.98
Applic.-Small	.84	.94	-	-
Self-Und.-Large	.88	.95	.98	.99
Self-Und.-Small	.87	.95	-	-
Prof. Att, Beh.-Large	.85	.94	.97	.98
Prof. Att, Beh.-Small	.86	.94	-	-
Communic.-Large	.86	.95	.97	.99
Communic.-Small	.86	.94	-	-
Impl. Conduct-Large	.80	.91	.96	.98
Impl. Conduct-Small	.83	.93	-	-
Gen-Lib Educ.-Large	.87	.95	.97	.99
Gen-Lib Educ.-Small	.86	.94	-	-
Progress Rating				
Fact. Knowledge	.78	.90	.95	.97
Princ., Theories	.68	.85	.92	.96
Applications	.67	.84	.91	.95
Self-Understanding	.73	.88	.93	.97
Prof. Att, Beh.	.68	.84	.92	.96
Communication	.74	.89	.94	.97
Impl. for Conduct	.69	.85	.92	.96
Gen-Lib. Educ.	.73	.88	.94	.97
Progress,Rel.Objectives	.84	.93	.97	.98

Conclusions and Recommendations

Conclusions

1. In examining the relationship between teaching methods and student progress, studio-courses in fine or applied arts should be studied separately.

   a. Instructors of such courses frequently found the standard set of objectives used in this study to be inadequate in describing their purposes.
   b. Studio courses were conducted with different methods than those characterizing more typical courses.
   c. A different pattern of relationships between teaching methods and progress on specific objectives was found for studio and non-studio courses.

The remaining conclusions apply to non-studio courses only.

2. There was evidence that students can make assessments of their progress on specific educational objectives with acceptable validity.

   a. While progress ratings apparently were subject to the halo effect, it was not so great that a meaningful degree of differentiation could not be made.
   b. Correlations between instructors' ratings of the importance of each objective and students' ratings of progress on these objectives were all positive and statistically significant, a finding consistent with the assumptions that both sets of ratings were made with at least minimal validity.

3. While the quality of instruction and level of student progress tended to be about the same for most of the subgroups studied, there was a consistent advantage for classes taught by the recitation method and for upper-division classes; and small classes were more effective than large in advanced course work.

   a. Instructors who employed recitation as their principal teaching method obtained higher average scores on nearly all of the *a priori* scores; their students also regularly reported more progress on relevant objectives.
   b. While upper-division classes reported more progress than was true of lower-division classes, the two levels obtained about the same scores on the *a priori* scales. Since upper-division courses are more likely than lower-division courses to enroll students whose interests are relevant to the course, the superior progress ratings for the former probably reflect this difference more than any differences in the quality of instruction.

c. In the upper-division, small classes obtained more favorable scores and progress ratings than did large classes; no consistent differences were noted among lower division courses of various sizes.

4. The a priori scales for describing teaching methods appeared to measure relevant dimensions of instruction.

a. While scores on the scales were significantly intercorrelated, each scale made an independent contribution to the prediction of progress ratings on at least one objective.
b. The multiple correlations between the a priori methods scores and progress ratings ranged from .50 to .69; six of the eight were over .65.

5. "Effective teaching procedures" differ depending on size of class and type of objective.

a. Only a few teacher behaviors were related to progress in all objectives for both large and small classes.
b. A few items were consistently related to success (progress) in small, but not large, classes; a small set of other items were regularly related to success in large, but not small, classes.
c. For every objective, and for both large and small classes, a number of specific instructional behaviors were related to progress ratings. Each set was sufficiently unique that no single model of effective instruction could be described. Rather, 16 somewhat overlapping, yet distinctive, models were developed.

6. Cross-validation statistics suggested that instructional procedures constituted an influential source of variation in student progress ratings.

a. The empirical scales correlated from .50 to .83 with progress ratings, averaging .68 for large classes and .62 for small classes.
b. In 13 of the 16 comparisons, the empirical scale (constituted by item analysis) correlated higher with progress ratings than did the Total Methods scores (composed of both selected and unselected items). Thus, the empirical scales consisted of especially relevant items.

7. Reliabilities of the measures used in this study were of an acceptable magnitude.

a. For the empirical scales, the a priori methods scales, and the summary measure of progress on relevant objectives, reliabilities of .90 or higher were obtained when 20-25 student raters were used. These reliabilities were about .85 when only 10 raters were used.

b. The course characteristic scales were relatively unreliable, and results for the Assignments scale were so poor that the scale should be discarded.

Recommendations

1. The approach to teaching evaluation was successful enough to recommend its application on a broader scale.

   a. With special modifications in objectives and teaching descriptions, the approach could be applied to studio courses and to graduate courses, neither of which were studied in this project.
   b. The importance of classification variables other than class size (e.g., discipline, level of course) should be examined.

2. The utility of the student feedback for improving instruction needs to be investigated.

   a. Will a full report and interpretive manual result in improved teacher performance and higher progress ratings? Tuckman and Oliver (1968) reported findings which support this approach.
   b. Are special in-service programs effective in improving instructional performance? The experimental findings reported by Gayles (1963) and Costin (1968) support this suggestion.

3. The materials and computer programs developed for this project should be made available to other institutions.

   a. The instrument should be modified to make it more generally applicable.
   b. A new report format should be prepared so that results on relevant empirical scales are reported and unreliable scales are omitted.

4. Research which has been postponed for lack of an adequate measure of teaching effectiveness should now be conducted.

   a. The relationships between effectiveness, on the one hand, and selected instructor characteristics on the other, should receive early attention. Characteristics such as amount of education, scholarly productivity, nonteaching experience, and personality traits are of immediate interest.

b. Refinements which identify some of the intricate relationships between student characteristics (expectations, background, ability, personality traits), the conditions they experience (teachers, methods, class arrangements) and the progress they make should be attempted.
c. Limitations to the use of student self-ratings should be more fully explored.

References

American College Testing Program. Technical report. Chicago: Science Research Associates, 1965.

Astin, A. W. and Lee, C. B. T. Current practices in the evaluation and training of college teachers. In Lee, C. B. T. (Ed.), Improving college teaching. Washington, D.C.: American Council on Education, 1967.

Atkin, J. M. Behavioral objectives in curriculum design: a cautionary note. The Science Teacher, 1968.

Bloom, B. S. (Ed.) Taxonomy of educational objectives. Handbook I: cognitive domain. New York: McKay, 1956.

Bryan, R. C. Teacher's image is stubbornly stable. Clearing House 1966, 40, 459-461.

Combs, A. W., Super, E. W., and Courson, C. The measurement of self-concept through self-report. Educational Psychological Measurement, 1963, 23, 493-500.

Costin, F. A graduate course in the teaching of psychology: description and evaluation. Journal of Teacher Education, 1968, 19, 425-432.

Deshpande, A. S. and Webb, S. C. Student perceptions of instructor teaching goals. III. Internal structure of ratings. Research Memorandum 68-5, Office of Evaluation Studies, Georgia Institute of Technology, 1968.

Dubin, R., and Taveggia, T. C. The teaching-learning paradox. Eugene, Oregon: Center for Advanced Study of Educational Administration, 1968.

Ebel, R. L. Measuring educational achievement. Englewood Cliffs, N. J.: Prentice-Hall, 1965.

Elliott, D. N. Characteristics and relationships of various criteria of college and university teaching. Purdue University Studies in Higher Education, 1950

Garber, H. Certain factors underlying the relationship between course grades and student judgments of college teachers. Dissertation Abstracts, 1965, 26, 6512.

Garvernick, C. M. and Carter, H. D. Instructor ratings and expected grades. California Journal of Educational Research, 1962, 13, 218-221.

Gayles, A. R. Program for instruction improvement. Improving College and University Teaching, 1963, 11, 65-67.

Getzels, J. W. and Jackson, P. W. The teacher's personality and characteristics. In N. L. Gage (Ed.) Handbook of research on teaching. Chicago: Rand-McNally, 1963, 506-582.

Holland, J. L. and Lutz, S. W. The predictive validity of a student's choice of vocation. Personnel and Guidance Journal, 1968, 46, 428-434.

Isaacson, R. L., McKeachie, W. J., and Milholland, J. E. Correlation of teacher personality variables and student ratings. Journal of Educational Psychology, 1963, 54, 110-117.

Isaacson, R. L., McKeachie, W. J., Milholland, J. E., Ling, Y. G., Hofeller, M., Baerwaldt, J. W., and Zinn, K. L. Dimensions of student evaluations of teaching. Journal of Educational Psychology, 1964, 55, 344-351.

Keefer, K. E. Self-prediction of academic achievement by college students. Unpublished doctor's dissertation, University of Tennessee, 1965.

Krathwohl, D. R., Bloom, B. S., and Masia, B. B. Taxonomy of educational objectives. Handbook II: affective domain. New York: McKay, 1956.

Langen, T. D. Student assessment of teaching effectiveness. Improving College and University Teaching, 1966, 14, 22-25.

McNeil, J. D. Concomitants of using behavioral objectives in the assessment of teacher effectiveness. Journal of Experimental Education, 1967, 36, 69-74.

Nunnally, J. D., Jr. Tests and measurements. New York: McGraw-Hill, 1959.

Paraskeuopoulos, I. How students rate their teachers. Journal of Educational Research, 1968, 37, 76-81.

Popham, W. James. Probing the validity of arguments against behavioral goals. In Anderson, R. C., Faust, G. W., Roderick, M. C., Cunningham, D. J., and Andre, T. (editors), Current research on instruction, Englewood Cliffs, N. J.: Prentice-Hall, 1969.

Rayder, N. F. College student rating of instructors. Journal of Experimental Psychology, 1968, 37, 76-81.

Remmers, H. H. To what extent do grades influence student ratings of instructors? Journal of Educational Research, 1930, 21, 314-316.

Remmers, H. H. Rating methods in research on teaching. In Gage, N. L. (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963.

Renner, R. R. A successful rating scale. Improving College and University Teaching, 1967, 15, 12-14.

Shock, N. W., Kelly, E. L, and Remmers, H. H. An empirical study of the validity of the Spearman-Brown formula as applied to the Purdue Rating Scale. Journal of Educational Psychology, 1927, 18, 187-195.

Soloman, D. Teacher behavior dimensions, course characteristics, and student evaluations of teachers. American Educational Research Journal, 1966, 3, 35-47.

Soloman, D., Rosenberg, L., and Bezdek, W. E. Teacher behavior and student learning. Journal of Educational Psychology, 1964, 55, 23-30.

Tuckman, B. W. and Oliver, W. F. Effectiveness of feedback to teachers as a function of source. Journal of Educational Psychology, 1968, 59, 297-301.

Tyler, R. W. Constructing achievement tests. Columbus: Ohio State University, 1934.

Voeks, V. W. and French, G. M. Are student ratings of teachers affected by grades? Journal of Higher Education, 1960, 31, 330.

Walsh, W. B. Validity of self-report. Journal of Counseling Psychology, 1967, 14, 18-23.

Weaver, C. H. Instructor rating by college students. Journal of Educational Psychology, 1960, 51, 21-25.

Williams, H. Y., Jr. College Students: Perceptions of the personal traits and instructional procedures of good and poor teachers. Dissertation Abstracts, 1965, 27, 3644-A.

Whitlock, G. H. The evaluation of teaching effectiveness. Proceedings, Sixth Annual Forum of the Association for Institutional Research, May, 1966.

Wittrock, M. C. Set applied to student learning. Journal of Educational Psychology, 1962, 53, 175-180.

Appendix A--Instruments

1. **Faculty Information Form**
2. **Student Reactions to Instruction and Courses**

2nd Sem.
1968-69

Faculty Information Form

1-13. Instructor's Name

1	2	3	4	5	6	7	8	9	10	11	12		13
					Last Name								First Initial

14-22. Social Security No.

			-			-				
14	15	16		17	18		19	20	21	22

23. Instructor's Rank

___(1) Professor
___(2) Associate Professor
___(3) Assistant Professor
___(4) Instructor
___(5) Assistant Instructor
___(6) GTA, GRA, GA
___(7) Other

24. Principal teaching method which you use in this course (check only one)

___(1) mostly lecture
___(2) mostly recitation (discussion)
___(3) mostly laboratory or demonstration
___(4) half lecture, half recitation
___(5) other combinations

25-30. Course Number

			-			
25	26	27		28	29	30

31. Does this course have separate laboratory, lecture and/or recitation section?

___(1) Yes
___(2) No

32. If yes, which of these are students being asked to consider in responding to the teaching evaluation instrument?

___(1) recitation section
___(2) lecture section (or a section which includes both lecture and recitation).
___(3) laboratory section
___(4) combination of laboratory and recitation/lecture

33. Number of students in the course section:

___(1) 14 or fewer
___(2) 15 to 29
___(3) 30 to 49
___(4) 50 to 99
___(5) 100 or more

34-41. Indicate the relative importance of each of the following as objectives for the course section under consideration

	(3) Essential	(2) Important	(1) Of no more than minor importance
34. Gaining factual knowledge (terminology, classifications, methods, trends).	___	___	___
35. Learning fundamental principles, generalizations, or theories	___	___	___
36. Learning to apply principles to solve practical problems	___	___	___
37. Student understanding of himself--his interests, talents, values, etc.	___	___	___
38. Learning attitudes and behavior characteristic of professionals in the field most closely related to this course	___	___	___
39. Developing skill in effective communication. . .	___	___	___
40. Student discovery of the implications of the course material for his personal and professional conduct	___	___	___
41. Gaining a broader understanding and appreciation of intellectual-cultural matters (music, science, literature, etc.) . . .	___	___	___

If the above list omits essential objectives of the course section, list these below.

____

____

____

Total number of forms needed for this class ________
Date form is to be administered ______________
Place forms should be delivered ______________

When this form is completed, return it to the Office of Educational Research, 217 Anderson.

ourse No.________________ **Instructor** ________________ **Date**________________

PART 1.

For the 58 statements which follow, mark the "T" column if the statement is more "true" than "false". Mark the "F" column if the statement is more "false" than "true".

. The instructor seemed to have a well developed plan for each class session. T F
. There were discussions between teachers and students. (As opposed to mere responses to questions.) T F
. He explained course material clearly, and explanations were to the point. T F
The instructor seemed to lack energy. T F
. The instructor answered student questions as completely as reasonable. T F
. He adjusted his pace to the needs of the class. T F
. Class time was seldom or never wasted. T F
. The instructor encouraged students to express themselves freely and openly. T F
. He was often incoherent and/or vague in what he was saying. T F
. The instructor seemed enthusiastic about the subject matter. T F
. He generally spoke too rapidly. T F
2. He changed his approach to meet new situations. T F
3. On several occasions, he seemed unprepared for class. T F
. Students made comments to the instructor without being asked. T F
5. He spoke with expressiveness and variety in tone of voice. T F
6. He demonstrated the importance and significance of his subject matter. T F
7. His presentations were dry and dull. T F
8. He requested and obtained student's questions and reactions. T F
9. He made it clear how each topic fit into the course. T F
0. He encouraged student comments even when they turned out to be incorrect or irrelevant. T F
1. He presented examples of what he wanted by way of homework, papers, etc. T F
2. He sometimes presented material in a humorous way. T F
3. He lectured in a low monotone. T F
4. He explained the reasons for his criticisms of students' academic performance. T F
5. He failed to state clearly the course requirements and deadlines. T F
6. He attempted to induce silent students to participate. T F
7. He summarized material in a manner which aided retention. T F
8. He stimulated students to intellectual effort beyond that required by most courses. T F
9. He lectured in a rambling fashion. T F
30. He understood student comments and questions even when these were not clearly expressed. T F
31. He stated clearly the objectives of the course. T F
32. He became angry or sarcastic when corrected or challenged by a student. T F
33. He failed to differentiate between significant and nonsignificant material. T F
34. He introduced stimulating ideas about the subject. T F
35. He repeated material to the point of monotony. T F
36. He displayed favoritism. T F
37. He related course material to real life situations. T F
38. He was available for individual help. T F
39. His speech was easy to understand. T F
40. He often dismissed class late. T F
41. He used leading questions to force students to answer their own questions. T F
42. He told the class when they had done a particularly good job. T F
43. The examinations gave a balanced coverage to major topics. T F
44. The instructor gave ample notice for lengthy assignments. T F
45. The textbook (or substitute reading materials) seemed out-of-date to me. T F
46. Too much of the course material repeated content covered by courses I had taken previously. T F
47. Examination questions were often unclear. T F
48. Out-of-class assignments were reasonable in length. T F
49. The textbook (or substitute reading materials) contained too little illustrative material. T F
50. Too much time was spent on too few topics - the course needs more breadth. T F
51. Examinations stressed memorization of information for which later recall seems unreasonable. T F
52. Assigned readings were pertinent to the topics presented in class. T F
53. Assigned readings (including text) were reasonably clear and understandable. T F
54. The instructor failed to make clear the relationship between this course and other courses. T F
55. Examination questions were frequently too detailed or picky. T F
56. I usually had no difficulty in obtaining outside reading materials. T F
57. Reading materials (including text) were organized in a logical, orderly fashion. T F
58. There were too many topics to understand any of them well. T F

PART 2.

Compare the progress you have made in this course with that made in other KSU courses you have taken. Use this key: 1=Lowest 10% of KSU courses I have taken. 2=Next 20%. 3=Middle 40%. 4=Next 20%. 5=Highest 10%.

9. Gaining factual knowledge (terminology, classifications, methods, trends.) 1 2 3 4 5
0. Learning fundamental principles, generalizations, or theories. 1 2 3 4 5
1. Learning to apply principles to solve practical problems. 1 2 3 4 5
2. Understanding myself - my interests, talents, values, etc. 1 2 3 4 5
3. Learning attitudes and behavior characteristic of professionals in the field most closely related to this course. 1 2 3 4 5
4. Developing skill in effective communication. 1 2 3 4 5
5. Discovering the implications of the course material for my personal and professional conduct. 1 2 3 4 5
6. Gaining a broader understanding and appreciation of intellectual-cultural matters. (music, science, literature, etc.) 1 2 3 4 5

PART 3.

General Information

7. Is this course required in your present curriculum? 1=yes 2=no 1 2
8. How much interest did you have in this course compared with other KSU courses you have taken? 1=less 2=average 3=more 1 2 3
9. What is your cumulative GPA at KSU? (Do not count transfer grades.) 1=below 2.0 2=2.0-2.4 3=2.5-2.9 4=3.0 or higher N=this is my first term at KSU. 1 2 3 4 N

For the next two questions, use the following key: 1=practically worthless 2=less worthwhile than most 3=about average 4=more worthwhile than most 5=extremely valuable.

70. How valuable would this course be to a student whose professional interests were related to this course? 1 2 3 4 5
71. How valuable would this course be as an elective for a student seeking a general interest (rather than a professional preparation) course? 1 2 3 4 5
72. How would the fact that this instructor were teaching another course affect your decision to take that course? 1=discourage me 2=irrelevant 3=encourage me. 1 2 3

SPECIAL QUESTIONS

If your instructor has prepared special questions, these may be answered in the spaces provided on the right.

73. 1 2 3 4 5
74. 1 2 3 4 5
75. 1 2 3 4 5
76. 1 2 3 4 5
77. 1 2 3 4 5
78. 1 2 3 4 5
79. 1 2 3 4 5
80. 1 2 3 4 5

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Use the other side of this form to comment on any aspect of this course which you feel might help improve it.

KSU

STUDENT REACTIONS TO INSTRUCTION AND COURSES

OER

General Directions: Your frank and honest reaction to each question in this inventory will help your instructor improve this course and his teaching procedures. Careless or dishonest answers may have the opposite effect. Try to answer every question even though, occasionally, none of the alternatives expresses your reaction exactly. Omit only those questions which ask about something which never occured. (e.g., questions about lectures when there were no lectures, questions about examinations when there were no examinations, etc.).

Use only a no. 2 pencil. Make broad, dark marks that fill the area between the pairs of lines without going outside them. Be careful not to mark beyond the end of the lines.

After answering the questions on the reverse side, you are encouraged to use the space below to make any comments which you feel might improve the course or help the instructor.

OFFICE OF EDUCATIONAL RESEARCH
KANSAS STATE UNIVERSITY

Appendix B

Example of computer "Report to Faculty Member"

```
        REPORT TO THE FACULTY MEMBER              SPRING  1969

        NAME                         COURSE              TT 10:3

NUMBER OF STUDENTS IN CLASS        ALL S'S    2.5+   REQUIRED   INTERESTED
                                   -------    ----   --------   ----------
                                     12        11       2           9

PART I.  INSTRUCTIONAL METHODS, PERCENTAGES

                                               STUDENT GROUP
                                   -----------------------------------------

                                   ALL S'S    2.5+   REQUIRED   INTERESTED
                                   -------    ----   --------   ----------

 PREPARATION AND ORGANIZATION        76        76       58          78
 STUDENT INVOLVEMENT                 63        62       79          76
 CLARITY OF COMMUNICATION            46        47       17          48
 STIMULATION                         61        64       71          68
 SPEAKING STYLE                      46        51       29          59
 PERSONALISM-CONSIDERATION           46        46       50          52

      TOTAL                          56        57       51          62

PART II.  PROGRESS RATINGS

                                   ALL S'S    2.5+   REQUIRED   INTERESTED
                                   -------    ----   --------   ----------

**FACTUAL KNOWLEDGE                  4.3       4.3      4.5         4.4
**PRINCIPLES, THEORIES               4.0       4.0      4.5         4.1
**APPLICATIONS                       3.7       3.7      4.0         4.0
  SELF-UNDERSTANDING                 2.3       2.3      3.5         2.6
 *PROF. ATTITUDES, BEHAVIOR          1.9       1.9      2.0         2.1
 *EFFECTIVE COMMUNICATION            1.8       1.8      1.0         2.0
 *INFL. ON PERSONAL-PROF. CONDUCT    2.9       2.9      2.5         3.2
  GENERAL-LIBERAL EDUCATION          1.3       1.3      2.0         1.4

  WEIGHTED TOTAL, RELEVANT GOALS     3.4       3.4      3.5         3.6

* =RATED "IMPORTANT" BY INSTRUCTOR   ** =RATED "ESSENTIAL" BY INSTRUCTOR

PART III.  COURSE RATINGS

                                   ALL S'S    2.5+   REQUIRED   INTERESTED
                                   -------    ----   --------   ----------

  EXAMINATIONS                       15        16        0          19
  ASSIGNMENTS                        87        86      100          91
  TEXTBOOK                           85        84      100          92
  CONTENT                            83        84       86          89
  RECOMMEND TO FRIEND
       AS PROF-COURSE                4.5       4.5      5.0         4.7
       AS PSNL INTRST COURSE         3.8       3.8      5.0         4.1
       INSTRUCTOR                    1.5       1.5      1.0         1.6
```

PART IV. ITEM ANALYSIS

TEACHING METHODS

	% RESPONDING T	F
PREPARATION AND ORGANIZATION		
1. WELL-DEVELOPED PLAN (T)	58	42
7. TIME NOT WASTED (T)	58	42
13. UNPREPARED (F)	25	75
19. ORGANIZED (T)	92	8
25. REQUIREMENTS NOT CLEAR (F)	25	75
31. OBJECTIVES STATED (T)	100	0
STUDENT INVOLVEMENT		
2. STUDENT-TCHR DISCUSS (T)	92	8
8. S'S SPEAK FREELY (T)	83	17
14. S'S VOLUNTEER COMMENTS (T)	42	58
18. INST. REQUESTS S'S VIEWS (T)	67	33
20. S COMMENTS ENCOURAGED (T)	42	58
26. SILENT S'S ENCOURAGED (T)	25	75
32. INST. BECAME ANGRY ETC. (F)	8	92
CLARITY OF COMMUNICATION		
3. EXPLAINED CLEARLY (T)	58	42
5. ANSWERED S'S QUESTIONS (T)	75	25
9. INCOHERENT, VAGUE (F)	50	50
21. GAVE EXAMPLES OF EXPECTAT. (T)	25	75
27. SUMMARIZED EFFECTIVELY (T)	42	58
33. MJR, MINOR PTS UNDIFF. (F)	75	25
STIMULATION		
4. LACKED ENERGY (F)	17	83
10. ENTHUSIASTIC (T)	67	33
16. DEMONSTRATED SIGNIF. (T)	92	8
22. USED HUMOR (T)	17	83
28. STIM. S'S TO INTELL. EFFORT (T)	33	67
34. STIM. IDEAS (T)	42	58
37. RELATED TO LIFE (T)	92	8
SPEAKING STYLE		
11. SPOKE TOO RAPIDLY (F)	75	25
15. EXPRESSIVE (T)	33	67
17. DRY AND DULL (F)	58	42
23. LOW MONOTONE (F)	25	75
29. RAMBLED (F)	58	42
35. REPEATED MONT. (F)	33	67
39. UNDERSTANDABLE (T)	42	58
PERSONALISM		
6. ADJUSTED PACE (T)	50	50
12. CHANGED APPROACH (T)	42	58
24. EXPLAINED CRITICISMS (T)	0	92
30. UND. S COMMENTS (T)	58	42
36. FAVORITISM (F)	50	50
38. INDIV. HELP (T)	58	42
40. DISMISSED LATE (F)	42	58
UNSCORED		
41. LEADING QUESTIONS (T)	42	58
42. PRAISED CLASS (T)	25	75

PART IV. ITEM ANALYSIS CONTINUED

COURSE REACTIONS

	% RESPONDING T	F
EXAMS		
43. BALANCED COVERAGE (T)	42	58
47. AMBIGUOUS (F)	92	8
51. UNREAS. MEMORIZATION (F)	92	8
55. TOO DETAILED (F)	100	0
ASSIGNMENTS		
44. AMPLE NOTICE (T)	75	17
48. REASONABLE LENGTH (T)	100	0
52. RELEVENT TO COURSE (T)	100	0
56. MATERIAL AVAILABLE (T)	67	33
TEXTBOOK		
45. OUT-OF-DATE (F)	42	58
49. INSUFFIC. ILLUS. (F)	8	92
53. CLEAR, READABLE (T)	92	8
57. ORGANIZED (T)	100	0
CONTENT		
46. REPETITIOUS (F)	8	92
50. TOO FEW TOPICS (F)	0	100
54. POORLY INTEGRATED (F)	25	67
58. TOO MANY TOPICS (F)	33	67

OTHER ITEMS

VALUE OF COURSE	70. PROF. PURPOSE	71. PSN'L PURPOSE
A. WORTHLESS	0	9
B. BELOW AVE.	9	9
C. AVERAGE	0	9
D. ABOVE AVE.	27	36
E. EXCEPT. VAL.	64	36

72. EFFECTS OF INSTRUCTOR ON SELECTING OTHER COURSES

LESS LIKELY	64
NO EFFECT	27
MORE LIKELY	9

OPTIONAL ITEMS

	ALTERNATIVES 1	2	3	4	5
73.	92	8	0	0	0
74.	42	8	8	0	42
75.	25	33	25	17	0
76.	0	0	33	25	42
77.	17	25	25	25	8
78.	17	17	58	8	0
79.	33	67	0	0	0
80.	8	58	17	17	0

Appendix C--Norms

In this section, the following notations are used.
1 = Preparation and organization score
2 = Student involvement score
3 = Clarity of communication score
4 = Stimulation score
5 = Speaking score
6 = Personalism score
T = Total methods score

A = Examinations score
B = Assignments score
C = Textbook score
D = Content score

FK = Factual knowledge mean rating
PT = Principles, theories mean rating
AP = Applications, mean rating
SU = Self-understanding, mean rating
PAB = Prof. attitudes, behavior, mean rating
C = Effective communication, mean rating
I = Impl. for conduct, mean rating
GLE = Gen-lib. education, mean rating

PRO = Progress on relevant objectives, mean rating

Table C-1

All-University Norms
Number of Classes = 708

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	100	99	98	99	100	99	97	100	100	100	100
98	99	98	97	98	99	98	96	100	100	100	99
95	98	96	95	96	98	96	94	99	98	99	96
90	97	93	93	94	97	94	92	96	96	97	95
84	95	91	91	91	96	92	91	92	95	95	93
75	93	87	89	88	93	89	88	88	94	93	91
60	90	83	83	83	89	86	84	80	91	90	87
50	87	80	79	80	86	83	81	75	90	88	85
40	83	77	74	75	82	80	78	69	88	85	82
25	76	69	65	68	75	73	72	58	86	80	78
16	69	61	58	62	69	70	66	49	82	74	74
10	61	53	51	55	64	66	63	42	79	69	70
5	50	45	42	47	54	62	57	40	75	56	65
2	37	35	33	37	47	55	50	31	63	40	48
1	35	33	31	35	44	52	48	28	56	40	40

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
98	4.5	4.5	4.5	4.5	4.5	4.6	4.5	4.5	4.5
95	4.4	4.4	4.3	4.2	4.4	4.4	4.4	4.3	4.2
90	4.2	4.2	4.2	3.9	4.2	4.1	4.2	3.8	4.1
84	4.1	4.1	4.0	3.7	4.0	3.7	4.1	3.4	4.0
75	4.0	3.9	3.8	3.5	3.8	3.4	3.9	3.0	3.8
60	3.7	3.7	3.5	3.2	3.5	3.0	3.6	2.7	3.6
50	3.6	3.5	3.3	3.0	3.4	2.8	3.5	2.5	3.4
40	3.4	3.4	3.2	2.8	3.2	2.7	3.3	2.4	3.3
25	3.2	3.2	2.9	2.6	3.0	2.4	3.0	2.1	3.1
16	3.0	3.0	2.7	2.4	2.8	2.2	2.8	2.0	2.9
10	2.9	2.8	2.5	2.3	2.6	2.1	2.6	1.9	2.8
5	2.6	2.7	2.3	2.1	2.4	1.9	2.4	1.7	2.6
2	2.2	2.4	2.0	1.9	2.0	1.7	2.1	1.6	2.4
1	2.1	2.3	1.9	1.8	1.9	1.6	2.0	1.5	2.3

Table C-2

Norms for Professors
Number of Classes = 127

%ile Rank	Score 1	2	3	4	5	6	T	A	B	C	D
99	99	98	100	100	100	99	98	100	100	100	100
98	99	97	99	99	99	98	96	100	100	100	100
95	98	95	97	97	98	96	94	100	99	99	99
90	96	92	95	95	97	94	92	97	97	97	96
84	95	90	92	93	96	92	90	95	96	95	94
75	93	87	89	90	93	89	88	90	95	93	91
60	90	82	83	85	88	86	84	83	92	91	88
50	88	77	80	82	86	84	81	78	91	89	85
40	83	75	75	78	81	81	80	83	89	85	83
25	75	67	65	73	74	75	73	63	87	80	78
16	68	58	56	67	68	70	66	56	84	75	73
10	63	48	47	52	60	66	60	40	91	72	68
5	52	37	39	42	52	58	50	40	80	62	65
2	32	23	27	36	46	50	44	32	71	45	52
1	21	20	22	35	43	48	43	29	70	40	48

%ile Rank	Rating FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.7	4.7
98	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
95	4.5	4.5	4.6	4.4	4.6	4.4	4.5	4.4	4.4
90	4.4	4.4	4.5	3.9	4.3	3.9	4.4	3.8	4.2
84	4.3	4.3	4.2	3.8	4.1	3.5	4.2	3.5	4.1
75	4.1	4.1	3.9	3.6	3.9	3.3	4.0	3.0	3.9
60	3.9	3.7	3.6	3.2	3.6	2.9	3.6	2.7	3.6
50	3.7	3.6	3.4	3.1	3.4	2.7	3.5	2.6	3.5
40	3.6	3.4	3.1	2.9	3.2	2.5	3.3	2.4	3.3
25	3.3	3.2	2.8	2.6	3.0	2.3	3.0	2.2	3.0
16	3.1	3.0	2.5	2.5	2.9	2.2	2.8	2.1	2.8
10	2.9	2.8	2.3	2.4	2.7	2.1	2.7	2.0	2.7
5	2.6	2.6	2.2	2.2	2.6	1.9	2.4	1.8	2.4
2	2.0	2.2	1.9	2.1	2.4	1.7	2.3	1.5	1.5
1	1.9	2.0	1.8	2.0	2.3	1.6	2.2	1.4	1.4

Table C-3

Associate Professors
Number of Classes = 152

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	100	100	97	99	100	99	98	100	100	100	98
98	99	99	96	98	100	97	96	99	100	100	97
95	99	95	95	97	99	94	94	96	99	98	95
90	98	92	93	95	96	92	92	92	96	96	94
84	96	90	91	92	95	91	91	89	95	95	92
75	94	86	88	89	93	88	88	85	94	92	90
60	91	80	80	84	91	84	82	76	91	89	86
50	87	76	76	80	83	81	78	70	90	87	84
40	82	71	70	77	79	76	75	62	88	84	81
25	76	61	61	68	73	71	69	50	85	79	78
16	65	55	54	62	66	69	66	43	82	75	74
10	55	49	48	55	63	66	61	41	79	71	70
5	45	40	41	52	57	63	56	40	75	64	66
2	37	34	32	34	44	58	49	37	65	51	56
1	36	33	29	28	43	57	47	35	62	44	50

%ile	Rating							
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.5	4.5	4.6	4.6	4.6	4.4	4.5
98	4.6	4.5	4.4	4.4	4.6	4.6	4.5	4.3	4.4
95	4.5	4.3	4.2	4.0	4.5	4.5	4.3	3.8	4.2
90	4.3	4.2	4.0	3.7	4.3	4.1	4.1	3.3	4.0
84	4.2	4.0	3.9	3.6	4.1	3.6	4.0	3.1	3.9
75	4.0	3.8	3.7	3.4	3.9	3.3	3.8	2.9	3.8
60	3.8	3.6	3.4	3.0	3.6	2.9	3.6	2.6	3.5
50	3.6	3.5	3.3	2.9	3.4	2.8	3.4	2.5	3.4
40	3.4	3.4	3.1	2.7	3.3	2.6	3.3	2.4	3.3
25	3.2	3.2	2.9	2.5	3.0	2.4	3.0	2.1	3.1
16	3.0	3.1	2.7	2.4	2.8	2.2	2.8	2.0	2.9
10	2.8	3.0	2.6	2.3	2.6	2.1	2.6	1.9	2.8
5	2.6	2.8	2.4	2.1	2.4	1.9	2.3	1.7	2.7
2	2.4	2.5	2.0	1.9	2.1	1.7	2.0	1.6	2.5
1	2.3	2.4	1.9	1.8	1.9	1.7	1.9	1.5	2.4

Table C-4

Assistant Professors
Number of Classes = 227

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	100	100	98	99	99	99	96	100	100	100	100
98	99	99	96	98	99	98	95	100	99	100	99
95	98	96	94	96	98	95	94	99	98	100	96
90	97	94	92	94	97	93	92	96	96	97	95
84	95	90	90	91	96	91	90	93	95	96	93
75	92	86	87	89	93	89	87	87	94	93	91
60	89	83	81	81	89	85	84	77	92	90	88
50	86	79	78	78	86	82	81	72	90	88	85
40	83	76	74	73	81	79	77	67	89	86	82
25	77	69	65	67	75	73	72	56	86	81	78
16	71	61	59	61	70	70	68	49	84	75	74
10	63	53	54	57	65	67	64	41	81	69	71
5	51	47	45	52	54	62	58	40	79	63	68
2	40	40	34	40	40	53	53	37	73	54	64
1	38	38	33	39	39	51	49	35	70	51	63

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.5
98	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.4
95	4.3	4.3	4.3	4.2	4.3	4.4	4.4	4.4	4.3
90	4.2	4.2	4.0	4.0	4.2	4.1	4.3	4.1	4.1
84	4.0	4.0	3.8	3.8	4.0	3.9	4.1	3.4	4.0
75	3.9	3.9	3.7	3.5	3.8	3.5	3.9	3.0	3.9
60	3.6	3.6	3.5	3.2	3.6	3.1	3.6	2.7	3.6
50	3.4	3.5	3.3	3.0	3.4	2.9	3.5	2.5	3.4
40	3.3	3.3	3.1	2.8	3.3	2.7	3.3	2.3	3.3
25	3.1	3.1	2.8	2.6	3.0	2.4	3.0	2.0	3.0
16	3.0	2.9	2.6	2.4	2.8	2.2	2.8	1.9	2.9
10	2.8	2.8	2.5	2.2	2.6	2.0	2.6	1.8	2.8
5	2.6	2.6	2.3	2.0	2.4	1.9	2.4	1.7	2.6
2	2.2	2.5	1.9	1.9	2.1	1.7	2.3	1.5	2.2
1	2.0	2.2	1.8	1.8	2.0	1.6	2.2	1.4	2.0

Table C-5

Instructors
Number of Classes = 145

%ile Rank	Score										
	1	2	3	4	5	6	T	A	B	C	D
99	99	98	98	97	100	98	96	100	100	100	100
98	98	98	97	96	99	97	95	100	100	100	99
95	98	97	95	93	98	96	94	99	99	100	96
90	97	94	93	90	97	95	93	96	96	98	95
84	96	92	91	89	96	93	91	92	95	96	93
75	94	88	89	88	94	91	89	89	93	95	90
60	91	85	86	83	91	88	86	80	91	91	88
50	89	82	82	81	88	85	83	77	89	89	85
40	86	80	75	75	83	82	81	74	88	87	82
25	78	75	66	68	77	75	74	63	84	80	78
16	72	69	59	62	71	71	66	54	81	72	73
10	66	64	51	52	65	67	62	46	77	64	67
5	58	53	39	40	56	62	59	40	73	45	61
2	36	39	33	33	50	61	56	37	47	40	40
1	30	37	32	32	49	60	52	35	40	38	38

%ile Rank	Rating								
	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.5
98	4.5	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.3
95	4.3	4.3	4.3	4.0	4.1	4.3	4.2	4.1	4.2
90	4.2	4.2	4.2	3.8	4.0	4.0	4.1	3.9	4.0
84	4.1	4.1	4.0	3.7	3.9	3.6	4.0	3.7	3.9
75	3.9	3.9	3.8	3.5	3.7	3.4	3.8	3.1	3.8
60	3.8	3.7	3.6	3.3	3.5	3.1	3.6	2.8	3.6
50	3.6	3.6	3.4	3.1	3.3	2.9	3.5	2.6	3.5
40	3.5	3.5	3.3	2.9	3.1	2.8	3.3	2.4	3.4
25	3.3	3.3	3.0	2.6	2.9	2.5	3.1	2.2	3.2
16	3.0	3.1	2.7	2.4	2.7	2.3	2.9	2.0	3.0
10	2.9	2.9	2.4	2.3	2.5	2.2	2.7	1.9	2.8
5	2.6	2.7	2.2	2.1	2.2	1.9	2.3	1.7	2.6
2	2.2	2.4	1.8	1.9	1.9	1.7	2.1	1.6	2.5
1	2.1	2.3	1.7	1.8	1.8	1.5	2.0	1.5	2.4

Table C-6

Assistant Instructors
Number of Classes = 51

%ile Rank	Score										
	1	2	3	4	5	6	T	A	B	C	D
99	98	97	98	100	100	99	96	100	100	100	100
98	97	97	97	99	100	98	96	100	100	100	98
95	96	96	95	95	99	97	94	99	98	99	96
90	94	95	94	91	98	96	93	95	96	96	94
84	92	93	93	88	97	94	92	93	95	94	92
75	90	89	92	86	96	92	90	92	93	91	90
60	84	85	88	79	93	89	86	89	90	88	86
50	81	83	84	72	90	86	83	81	88	86	84
40	79	80	78	68	88	83	79	76	86	82	81
25	70	76	67	62	77	76	71	67	80	72	77
16	62	70	63	56	68	69	65	44	76	57	72
10	50	66	57	51	62	65	61	40	71	41	69
5	39	62	46	50	45	58	54	38	41	40	40
2	36	61	33	37	39	53	51	35	39	37	37
1	35	50	28	26	38	50	50	33	36	35	35

%ile Rank	Rating								
	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.4	4.3	4.3	4.6	4.4	4.6	4.3	4.3	4.4
98	4.4	4.3	4.3	4.6	4.4	4.5	4.3	4.3	4.4
95	4.3	4.2	4.3	4.5	4.2	4.4	4.2	4.2	4.3
90	4.2	4.1	4.2	4.3	4.1	4.2	4.1	4.0	4.0
84	4.1	4.0	4.1	3.7	3.9	3.8	4.0	3.7	3.9
75	3.9	3.9	3.9	3.5	3.7	3.5	3.8	3.1	3.7
60	3.7	3.7	3.5	3.1	3.3	3.1	3.5	2.7	3.6
50	3.6	3.6	3.3	2.9	3.1	2.8	3.3	2.5	3.5
40	3.3	3.3	3.2	2.7	2.9	2.5	3.1	2.4	3.4
25	3.0	3.1	2.9	2.4	2.6	2.2	2.9	2.2	3.1
16	2.9	2.9	2.7	2.2	2.4	2.0	2.8	2.0	2.9
10	2.8	2.8	2.6	2.0	2.3	1.9	2.7	1.8	2.7
5	2.6	2.7	2.5	1.8	2.0	1.6	2.5	1.7	2.5
2	2.4	2.6	2.1	1.6	1.8	1.4	1.9	1.5	2.4
1	2.3	2.5	1.9	1.6	1.7	1.4	1.8	1.4	2.4

Table C-7

Method - Lecture
Number of Classes - 252

%ile Rank	Score										
	1	2	3	4	5	6	T	A	B	C	D
99	100	95	98	97	99	97	95	99	100	99	98
98	99	93	97	96	98	96	94	97	99	98	97
95	98	89	94	93	96	93	92	95	98	97	95
90	97	86	91	91	95	91	90	92	96	95	93
84	95	83	89	89	93	90	87	89	95	94	91
75	93	80	85	87	91	87	85	83	93	92	89
60	90	75	80	82	87	83	81	76	91	89	86
50	88	72	76	79	83	81	79	72	90	87	83
40	84	68	71	74	81	77	76	65	89	85	81
25	79	58	64	68	73	72	70	55	86	80	78
16	73	51	58	62	66	69	65	49	84	75	74
10	66	46	53	56	62	65	60	43	82	71	71
5	58	36	43	47	54	62	56	40	80	67	68
2	44	29	34	40	47	56	47	37	75	61	66
1	35	26	32	39	43	54	45	35	73	60	65

%ile Rank	Rating								
	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.6	4.5	4.1	4.4	3.8	4.4	4.6	4.4
98	4.5	4.5	4.4	3.9	4.3	3.7	4.3	4.5	4.3
95	4.4	4.3	4.2	3.8	4.1	3.5	4.2	4.2	4.1
90	4.2	4.2	4.0	3.6	4.0	3.3	4.1	3.7	4.0
84	4.1	4.0	3.8	3.5	3.9	3.2	4.0	3.1	3.9
75	4.0	3.9	3.6	3.3	3.7	3.0	3.7	2.9	3.7
60	3.7	3.6	3.4	3.0	3.4	2.7	3.5	2.7	3.5
50	3.6	3.5	3.2	2.8	3.3	2.5	3.3	2.5	3.4
40	3.5	3.4	3.1	2.7	3.1	2.4	3.2	2.4	3.3
25	3.2	3.3	2.8	2.5	2.9	2.2	2.9	2.2	3.0
16	3.1	3.1	2.6	2.3	2.7	2.1	2.7	2.0	2.9
10	2.9	3.0	2.4	2.2	2.5	2.0	2.5	1.9	2.8
5	2.8	2.8	2.2	2.0	2.4	1.8	2.3	1.8	2.6
2	2.4	2.6	2.0	1.9	2.2	1.7	2.1	1.6	2.5
1	2.3	2.5	1.9	1.9	2.1	1.6	2.0	1.5	2.4

Table C-8

Method - Recitation
Number of Classes = 99

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	100	100	100	100	100	99	99	100	100	100	100
98	99	99	98	100	100	99	98	100	100	100	100
95	98	98	96	98	99	97	96	100	99	100	98
90	97	97	94	96	99	95	94	98	97	99	96
84	95	96	93	95	98	93	93	96	96	97	95
75	93	94	90	92	97	92	91	92	95	95	91
60	89	89	87	88	94	88	88	87	93	91	89
50	86	86	82	83	91	84	85	84	91	89	87
40	80	83	78	76	87	79	82	80	89	85	83
25	75	78	64	66	80	73	73	72	86	81	80
16	69	73	58	55	76	69	68	61	83	74	75
10	64	69	51	52	66	67	64	51	81	69	72
5	52	62	45	40	58	61	59	41	77	63	66
2	41	59	38	34	48	58	53	38	72	59	63
1	40	58	33	32	45	57	51	36	71	58	62

%ile	Rating								
Rank	FK	PT	APS	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
98	4.6	4.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6
95	4.5	4.5	4.5	4.6	4.6	4.6	4.6	4.4	4.5
90	4.2	4.3	4.4	4.5	4.4	4.5	4.4	4.3	4.3
84	4.1	4.2	4.2	4.2	4.3	4.4	4.3	4.0	4.2
75	3.9	4.1	4.0	3.9	3.9	4.2	4.2	3.4	4.1
60	3.7	3.7	3.7	3.4	3.5	3.7	3.7	2.9	3.8
50	3.6	3.6	3.5	3.2	3.4	3.4	3.5	3.7	3.6
40	3.5	3.4	3.2	3.0	3.1	3.1	3.3	2.6	3.4
25	3.1	3.2	2.8	2.6	2.9	2.6	3.0	2.3	3.2
16	2.8	3.0	2.6	2.4	2.6	2.3	2.7	2.0	2.9
10	2.7	2.9	2.4	2.3	2.2	2.1	2.6	1.9	2.8
5	2.5	2.7	2.2	1.9	2.0	1.9	2.3	1.7	2.6
2	2.0	2.5	1.8	1.8	1.9	1.5	1.9	1.5	2.5
1	2.0	2.4	1.7	1.7	1.8	1.4	1.8	1.5	2.4

Table C-9

Method - Lab-Demonstration
Number of Classes = 93

%ile Rank	Score 1	2	3	4	5	6	T	A	B	C	D
99	99	99	98	100	100	99	96	100	100	100	100
98	98	98	96	98	100	98	95	100	100	100	100
95	97	96	95	94	99	97	94	100	100	100	99
90	96	95	94	90	98	96	93	99	99	99	95
84	95	93	93	89	97	95	92	96	96	98	94
75	92	90	91	85	94	92	89	91	93	95	91
60	90	86	85	81	90	87	85	82	89	90	86
50	86	81	79	76	86	85	81	75	88	87	83
40	80	78	71	71	81	81	76	69	87	82	79
25	71	72	63	63	74	72	71	45	80	71	72
16	60	65	57	58	67	69	65	41	76	42	64
10	53	61	48	52	57	66	59	40	60	40	41
5	40	53	41	50	47	63	56	38	40	38	39
2	37	44	31	43	40	56	52	34	37	35	36
1	36	39	29	39	39	55	51	31	34	32	33

%ile Rank	Rating FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.5	4.6	4.4	4.6
98	4.5	4.5	4.6	4.5	4.5	4.3	4.5	4.2	4.5
95	4.4	4.3	4.4	4.3	4.2	4.1	4.3	4.0	4.2
90	4.3	4.2	4.2	3.9	4.0	3.7	4.2	3.8	4.0
84	4.2	4.1	4.0	3.8	3.9	3.4	4.0	3.6	3.9
75	4.0	3.9	3.8	3.6	3.7	3.3	3.9	3.3	3.8
60	3.6	3.6	3.5	3.4	3.5	3.0	3.6	2.7	3.6
50	3.5	3.4	3.4	3.2	3.4	2.9	3.5	2.5	3.4
40	3.4	3.3	3.3	3.0	3.2	2.8	3.4	2.3	3.3
25	3.1	3.0	3.1	2.7	3.0	2.5	3.2	2.0	3.0
16	3.0	2.9	2.8	2.4	2.8	2.3	2.9	1.9	2.9
10	2.9	2.8	2.6	2.2	2.6	2.1	2.7	1.7	2.7
5	2.8	2.6	2.4	2.0	2.4	1.9	2.6	1.6	2.5
2	2.7	2.4	2.2	1.7	2.1	1.6	2.3	1.4	1.7
1	2.6	2.3	2.1	1.6	2.1	1.5	2.2	1.4	1.4

Table C-10

Method - Lab-Recitation
Number of Classes = 141

%ile Rank	Score										
	1	2	3	4	5	6	T	A	B	C	D
99	100	100	98	98	100	100	97	100	100	100	100
98	99	99	98	97	100	98	96	100	100	100	99
95	98	97	96	95	99	96	95	100	98	99	98
90	97	95	94	93	98	94	93	96	96	96	94
84	95	93	92	91	97	92	92	92	95	95	92
75	93	89	90	88	95	89	90	88	94	93	91
60	90	85	85	84	90	86	86	81	92	90	87
50	87	84	80	81	87	84	82	74	91	89	85
40	83	81	76	76	81	81	79	70	89	87	82
25	72	76	66	70	74	76	72	60	87	80	76
16	63	70	59	66	70	73	67	50	83	75	72
10	51	62	49	58	65	67	64	41	79	69	70
5	44	52	41	54	55	63	58	40	76	61	66
2	37	40	34	41	50	52	54	37	71	48	61
1	35	34	33	39	49	50	53	35	70	45	60

%ile Rank	Rating								
	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.5	4.5	4.6	4.6	4.6	4.6	4.6	4.6
98	4.4	4.5	4.5	4.5	4.6	4.6	4.6	4.5	4.5
95	4.2	4.3	4.4	4.0	4.5	4.5	4.5	4.3	4.3
90	4.1	4.2	4.2	3.8	4.3	4.3	4.3	3.7	4.1
84	4.0	4.0	4.0	3.7	4.2	4.1	4.1	3.3	4.0
75	3.9	3.8	3.7	3.4	4.0	3.7	3.9	2.9	3.8
60	3.6	3.6	3.5	3.1	3.8	3.3	3.7	2.6	3.6
50	3.4	3.4	3.3	3.0	3.6	3.1	3.5	2.4	3.4
40	3.3	3.3	3.1	2.9	3.4	2.9	3.4	2.2	3.3
25	3.1	3.0	2.8	2.7	3.2	2.7	3.2	2.0	3.1
16	2.9	2.9	2.7	2.5	2.9	2.5	3.0	1.9	2.9
10	2.7	2.7	2.5	2.4	2.7	2.2	2.8	1.9	2.8
5	2.4	2.5	2.3	2.1	2.6	2.0	2.5	1.8	2.6
2	1.9	2.3	1.9	1.8	2.3	1.8	2.3	1.6	2.0
1	1.7	2.2	1.8	1.7	2.2	1.7	2.2	1.5	1.8

Table C-11

Size Large - Under 400
Number of Classes = 54

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	98	100	95	98	97	96	92	98	100	100	94
98	98	99	93	97	97	95	91	95	97	98	94
95	97	97	90	95	96	92	90	90	94	96	92
90	96	87	88	93	95	90	89	82	93	94	91
84	94	81	86	91	94	88	88	81	93	93	90
75	92	76	84	89	91	87	86	78	91	91	88
60	90	72	82	85	88	84	82	73	89	89	85
50	89	67	79	83	85	82	80	67	88	88	84
40	88	61	76	80	82	79	77	64	87	86	82
25	80	48	68	70	79	75	72	56	86	81	77
16	74	40	63	68	72	72	66	53	84	77	74
10	69	38	53	63	64	68	60	50	82	72	71
5	54	32	44	56	59	61	57	46	79	68	68
2	47	26	31	41	47	57	48	43	78	62	64
1	44	24	24	36	40	55	41	40	78	58	62

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.5	4.3	4.0	4.0	3.5	4.0	4.6	4.1
98	4.6	4.4	4.2	3.9	3.9	3.4	4.0	4.5	4.1
95	4.3	4.3	3.9	3.7	3.8	3.3	3.9	4.4	4.0
90	4.2	4.2	3.8	3.6	3.7	3.0	3.7	4.2	3.8
84	4.1	4.0	3.7	3.5	3.6	2.9	3.6	3.8	3.7
75	3.9	3.8	3.5	3.2	3.5	2.7	3.4	3.1	3.6
60	3.7	3.7	3.3	2.9	3.3	2.5	3.2	2.8	3.4
50	3.6	3.5	3.1	2.7	3.2	2.4	3.1	2.7	3.3
40	3.5	3.5	3.0	2.6	3.0	2.3	3.0	2.5	3.3
25	3.3	3.3	2.8	2.4	2.7	2.1	2.7	2.3	3.1
16	3.2	3.2	2.7	2.2	2.5	1.9	2.5	2.2	2.9
10	3.0	3.1	2.5	2.1	2.5	1.8	2.4	2.1	2.7
5	2.8	2.9	2.3	2.0	2.4	1.7	2.1	2.0	2.5
2	2.5	2.5	1.9	1.9	2.2	1.6	2.0	1.9	2.4
1	2.4	2.3	1.8	1.8	2.2	1.5	1.9	1.9	2.3

Table C-12

Size Medium - Under 400
Number of Classes = 36

%ile Rank	Score										
	1	2	3	4	5	6	T	A	B	C	D
99	99	89	95	97	100	97	95	93	100	97	95
98	99	89	94	97	99	96	94	92	99	96	95
95	98	88	91	96	98	92	93	90	97	95	93
90	95	87	90	92	97	91	91	86	95	93	90
84	94	85	88	88	92	90	87	82	94	92	88
75	93	83	82	85	90	89	84	73	92	90	86
60	90	78	77	82	87	84	81	66	90	88	84
50	88	73	73	80	84	80	80	62	88	86	83
40	86	65	69	76	82	76	77	58	87	82	82
25	81	59	65	71	79	71	72	51	85	77	79
16	77	53	56	64	73	67	69	49	82	72	75
10	72	45	54	62	69	65	62	41	81	70	69
5	63	38	45	51	54	63	58	40	77	60	68
2	52	32	42	50	41	59	57	37	75	59	65
1	52	32	42	50	41	59	57	35	75	59	65

%ile Rank	Rating								
	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.3	4.5	4.3	3.9	4.4	4.0	4.6	3.5	4.2
98	4.2	4.4	4.3	3.9	4.4	4.0	4.5	3.5	4.2
95	4.0	4.2	4.2	3.8	4.2	3.8	4.1	3.4	4.0
90	4.0	4.0	4.1	3.7	4.1	3.4	4.0	3.0	3.9
84	3.8	3.8	3.9	3.6	4.0	3.2	3.9	2.9	3.7
75	3.7	3.6	3.7	3.3	3.9	2.9	3.7	2.6	3.5
60	3.6	3.5	3.5	2.7	3.4	2.5	3.4	2.3	3.3
50	3.5	3.4	3.2	2.6	3.2	2.3	3.1	2.2	3.2
40	3.3	3.3	2.8	2.5	3.0	2.2	3.0	2.1	3.0
25	3.2	3.1	2.6	2.3	2.8	2.1	2.7	2.0	2.9
16	3.1	3.0	2.4	2.2	2.6	2.0	2.5	1.9	2.8
10	2.9	2.9	2.3	2.1	2.5	1.9	2.4	1.8	2.7
5	2.8	2.8	2.3	2.0	2.4	1.7	2.4	1.8	2.6
2	2.7	2.5	2.1	1.8	2.1	1.6	2.3	1.7	2.6
1	2.7	2.5	2.0	1.8	2.1	1.6	2.3	1.7	2.5

Table C-13

Size Small - Under 400
Number of Classes = 354

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	99	98	98	98	100	98	96	100	100	100	100
98	99	97	97	96	100	97	95	100	100	100	98
95	98	96	96	94	99	96	94	99	99	99	96
90	97	93	94	91	97	94	92	95	97	98	94
84	95	91	92	89	96	93	91	92	96	96	93
75	94	87	90	87	94	90	89	88	94	94	90
60	90	83	86	81	89	86	85	79	92	91	88
50	88	80	81	77	86	84	82	74	90	88	85
40	84	78	76	73	81	81	78	69	89	86	82
25	77	71	64	66	73	74	71	57	85	79	78
16	70	65	58	60	68	70	66	47	82	72	73
10	62	58	51	53	63	67	63	41	79	65	68
5	50	47	43	43	53	62	57	40	74	43	62
2	39	31	34	34	45	54	51	37	52	40	40
1	38	27	32	32	44	51	49	35	40	38	38

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.5	4.4	4.6	4.5	4.6	4.4	4.6	4.4
98	4.4	4.4	4.3	4.5	4.4	4.6	4.3	4.5	4.3
95	4.3	4.2	4.2	4.1	4.2	4.4	4.2	4.2	4.1
90	4.1	4.1	4.0	3.8	4.0	4.2	4.1	3.7	4.1
84	4.0	4.0	3.8	3.6	3.9	3.8	3.9	3.4	3.9
75	3.9	3.8	3.7	3.4	3.7	3.4	3.7	3.0	3.7
60	3.7	3.6	3.4	3.1	3.4	3.0	3.5	2.6	3.5
50	3.5	3.4	3.3	3.0	3.3	2.8	3.4	2.5	3.4
40	3.4	3.3	3.1	2.8	3.1	2.7	3.3	2.3	3.3
25	3.2	3.1	2.9	2.5	2.9	2.4	3.0	2.0	3.0
16	3.0	3.0	2.7	2.4	2.7	2.2	2.8	1.9	2.9
10	2.9	2.8	2.5	2.2	2.5	2.0	2.6	1.8	2.8
5	2.6	2.7	2.2	2.0	2.2	1.9	2.5	1.6	2.6
2	2.3	2.5	1.9	1.8	1.9	1.6	2.2	1.5	2.4
1	2.1	2.4	1.8	1.7	1.8	1.5	2.0	1.4	2.3

Table C-14

Size Large - Over 400
Number of Classes = 40

%ile Rank	Score 1	2	3	4	5	6	T	A	B	C	D
99	97	95	94	98	99	94	94	98	98	97	96
98	97	94	93	98	98	94	94	97	98	97	96
95	96	92	92	97	97	93	93	95	96	96	95
90	95	88	90	95	96	92	92	93	95	95	94
84	94	84	88	92	95	90	87	89	94	94	92
75	93	80	86	90	93	89	86	84	93	92	91
60	89	75	80	86	88	85	83	77	92	90	87
50	86	70	76	84	86	83	79	72	91	88	84
40	81	66	73	82	84	79	77	68	90	87	82
25	76	60	67	75	80	73	73	60	88	84	80
16	71	57	65	72	74	70	71	49	86	80	79
10	63	53	60	67	72	69	69	42	83	75	78
5	58	49	54	64	62	68	67	40	79	67	73
2	57	46	48	63	50	67	61	37	77	61	72
1	57	46	48	63	50	66	61	35	76	61	72

%ile Rank	Rating FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.4	4.6	4.5	4.5	4.0	4.4	4.6	4.2
98	4.5	4.4	4.5	4.4	4.5	4.0	4.4	4.4	4.2
95	4.4	4.3	4.3	4.2	4.4	3.8	4.3	4.1	4.1
90	4.3	4.2	4.1	3.9	4.2	3.5	4.2	3.5	4.0
84	4.2	4.0	3.8	3.7	4.1	3.4	4.1	3.1	4.0
75	4.1	3.9	3.7	3.5	3.8	3.2	4.0	3.0	3.9
60	3.8	3.7	3.6	3.2	3.6	3.0	3.7	2.7	3.6
50	3.6	3.6	3.4	3.0	3.5	2.8	3.5	2.5	3.5
40	3.5	3.5	3.3	3.0	3.4	2.7	3.4	2.4	3.4
25	3.3	3.3	3.1	2.8	3.3	2.5	3.2	2.3	3.2
16	3.2	3.3	3.0	2.7	3.1	2.4	3.1	2.2	3.1
10	3.0	3.2	3.0	2.6	3.0	2.3	3.0	2.1	3.0
5	2.9	3.0	2.8	2.4	2.8	2.0	3.0	2.0	2.9
2	2.8	2.8	2.5	2.1	2.6	1.9	2.9	2.0	2.7
1	2.8	2.8	2.5	2.1	2.6	1.9	2.8	1.9	2.7

Table C-15

Size Medium - Over 400
Number of Classes = 68

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	99	98	96	99	100	98	96	99	100	100	99
98	99	96	95	98	100	95	94	98	99	100	98
95	98	94	93	97	98	93	92	97	98	98	96
90	97	92	92	95	97	92	91	94	97	95	94
84	95	87	90	93	95	91	90	92	96	92	92
75	93	85	87	89	92	87	87	90	94	91	89
60	88	82	79	84	87	84	82	79	92	88	85
50	83	79	74	78	82	77	77	76	90	86	82
40	80	76	69	69	77	73	73	67	88	84	80
25	63	69	59	59	72	68	67	50	83	81	77
16	55	62	49	54	65	65	65	41	81	74	72
10	50	56	46	52	63	60	59	40	78	68	71
5	46	49	36	46	56	53	51	37	76	59	67
2	25	47	31	41	52	48	47	34	71	46	61
1	24	46	30	40	52	47	46	31	70	45	60

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.5	4.6	4.5	4.5	4.6	4.6	4.5	4.6	4.5
98	4.5	4.6	4.5	4.4	4.5	4.6	4.5	4.5	4.3
95	4.4	4.5	4.4	4.1	4.3	4.4	4.4	4.2	4.2
90	4.4	4.3	4.1	3.7	4.2	3.6	4.3	3.9	4.1
84	4.3	4.1	3.9	3.6	4.1	3.4	4.1	3.1	4.0
75	4.1	3.9	3.8	3.4	3.8	3.3	4.0	2.9	3.9
60	3.6	3.6	3.5	3.0	3.5	2.9	3.6	2.6	3.6
50	3.5	3.5	3.3	2.8	3.4	2.8	3.5	2.5	3.4
40	3.2	3.3	3.1	2.6	3.3	2.7	3.3	2.3	3.2
25	2.9	2.9	2.7	2.5	3.1	2.5	3.1	2.0	2.9
16	2.7	2.7	2.5	2.4	2.8	2.3	2.8	1.9	2.7
10	2.4	2.6	2.4	2.3	2.7	2.2	2.7	1.8	2.6
5	2.1	2.5	2.2	2.2	2.5	2.0	2.5	1.7	2.3
2	1.9	2.1	2.1	2.1	2.4	1.9	2.3	1.5	1.4
1	1.9	2.1	2.0	2.1	2.4	1.8	2.3	1.5	1.4

Table C-16

Size Small - Over 400
Number of Classes = 155

%ile	Score										
Rank	1	2	3	4	5	6	T	A	B	C	D
99	100	100	100	100	100	100	98	100	100	100	100
98	100	100	99	99	99	99	97	100	100	100	100
95	99	98	97	98	98	98	96	100	100	100	100
90	98	97	95	96	97	96	94	99	100	99	98
84	97	94	93	94	96	94	92	97	96	97	96
75	93	91	89	92	94	90	89	93	94	95	93
60	89	87	82	87	90	87	86	87	92	91	90
50	86	85	80	82	88	84	83	84	90	89	89
40	82	81	75	80	82	81	81	79	88	86	85
25	75	75	67	72	76	77	76	69	86	80	79
16	69	70	59	67	69	72	69	58	82	76	74
10	63	59	48	59	63	68	62	54	79	72	70
5	41	52	36	45	53	64	57	40	73	65	66
2	33	44	30	38	39	59	47	37	68	49	61
1	29	39	28	37	37	57	46	35	66	47	60

%ile	Rating								
Rank	FK	PT	AP	SU	PAB	C	I	GLE	P,RO
99	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
98	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
95	4.6	4.5	4.6	4.5	4.6	4.5	4.6	4.4	4.5
90	4.4	4.4	4.5	4.3	4.5	4.3	4.5	4.1	4.4
84	4.3	4.3	4.3	4.0	4.3	4.1	4.4	3.6	4.2
75	4.2	4.2	4.1	3.8	4.1	3.8	4.2	3.3	4.1
60	4.0	3.9	3.8	3.4	3.9	3.4	4.0	2.9	3.9
50	3.8	3.7	3.6	3.3	3.8	3.2	3.9	2.7	3.7
40	3.6	3.5	3.4	3.1	3.6	3.0	3.6	2.5	3.6
25	3.3	3.3	3.0	2.8	3.3	2.7	3.3	2.3	3.3
16	3.1	3.2	2.7	2.6	3.1	2.5	3.1	2.1	3.1
10	2.9	3.0	2.5	2.5	3.0	2.4	2.9	2.0	2.9
5	2.6	2.7	2.4	2.3	2.5	2.2	2.7	1.9	2.7
2	2.0	2.2	2.0	1.9	2.2	1.9	2.3	1.7	2.4
1	1.7	2.1	1.9	1.8	2.1	1.8	2.1	1.6	2.3

Appendix D

Item Analyses

The tables in this appendix use the following notations:

Crit. Grp. = Criterion Group
FK = Classes for which Factual Knowledge was an "essential" objective
PT = Classes for which Principles, Theories was an "essential" objective
A = Classes for which Applications was an "essential" objective
SU = Classes for which Self-Understanding was an "essential" objective
PAB = Classes for which Professional Attitudes and Behaviors was an "essential" objective
C = Classes for which Effective Communication was an "essential" objective
I = Classes for which Implications for Conduct was an "essential" objective
GLE = Classes for which General-Liberal Education was an "essential" objective

"Category" refers to the average progress rating on a given objective. Classes in Category 1 reported the greatest progress; those in Category 6 the least progress.

C_c = The adjusted or "corrected" contingency coefficient. Since chi-squares were developed from 2 X 6 tables, it was computed by multiplying the contingency coefficient, by $\sqrt{2}$.

"Decision" refers to whether the item was selected ("Accept") or not ("Reject") based on the criteria discussed in the text.

Table D-1

Percentage of Students in Each Achievement Category Who Said "True" to Item 1, "The instructor seemed to have a well developed plan for each class session".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1549	91	95	87	80	63	48	.47	Accept
FK-Large	2029	98	94	86	94	85	-	.20	Reject
PT-Small	1763	89	90	82	86	78	77	.17	Reject
PT-Large	2705	98	85	94	76	90	-	.33	Reject
A-Small	1309	90	84	88	86	81	94	.15	Reject
A-Large	1907	97	94	85	82	50	92	.52	Reject
SU-Small	1512	84	80	89	96	89	68	.30	Reject
SU-Large	1734	86	87	97	80	93	79	.28	Reject
PAB-Small	1716	90	89	82	83	66	59	.36	Accept
PAB-Large	2673	92	97	88	94	89	81	.21	Reject
C-Small	1981	91	92	86	84	89	75	.24	Reject
C-Large	1718	73	99	90	96	93	92	.28	Reject
I-Small	950	88	95	81	85	54	83	.35	Reject
I-Large	1238	93	98	97	92	75	-	.26	Reject
GLE-Small	1109	90	96	89	88	86	64	.41	Accept
GLE-Large	2496	90	96	90	94	79	88	.17	Reject

Table D-2

Percentage of Students in Each Achievement Category Who Said "True" to Item 2, "There were discussions between teachers and students (as opposed to mere responses to questions)".

Crit. Grp	N	Category						C_c	Decision
		1	2	3	4	5	6		
FK-Small	1541	91	84	81	82	87	73	.19	Reject
FK-Large	2017	83	80	59	68	68	-	.30	Reject
PT-Small	1772	93	88	78	73	74	75	.30	Reject
PT-Large	2636	66	65	66	47	56	-	.20	Reject
A-Small	1308	85	74	83	71	64	71	.26	Reject
A-Large	1865	72	63	82	60	44	31	.33	Accept
SU-Small	1526	95	93	93	83	81	68	.35	Accept
SU-Large	1740	91	77	75	63	69	41	.44	Accept
PAB-Small	1732	92	87	78	83	84	85	.20	Reject
PAB-Large	2602	92	53	80	57	49	33	.53	Accept
C-Small	1992	93	90	90	88	72	71	.34	Accept
C-Large	1730	86	93	91	78	75	54	.47	Accept
I-Small	946	90	88	78	85	87	76	.20	Reject
I-Large	1235	91	82	64	72	40	-	.53	Accept
GLE-Small	1122	88	80	88	88	77	82	.15	Reject
GLE-Large	2466	71	84	98	41	50	60	.45	Reject

Table D-3

Percentage of Students in Each Achievement Category Who Said "True" to Item 3, "He explained course material clearly, and explanations were to the point".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1554	86	87	76	69	50	27	.49	Accept
FK-Large	2030	94	90	69	71	32	0	.54	Accept
PT-Small	1775	87	86	70	72	58	55	.35	Accept
PT-Large	2717	91	81	85	62	65	0	.35	Accept
A-Small	1308	85	74	82	71	64	71	.26	Reject
A-Large	1913	89	81	81	48	36	60	.54	Reject
SU-Small	1519	83	74	87	86	70	64	.25	Reject
SU-Large	1758	86	82	96	66	75	67	.37	Reject
PAB-Small	1724	88	86	67	77	57	44	.45	Accept
PAB-Large	2685	90	97	79	80	72	60	.33	Accept
C-Small	1996	86	88	82	71	77	63	.31	Reject
C-Large	1740	80	96	83	91	84	67	.35	Reject
I-Small	948	86	87	74	71	55	67	.30	Reject
I-Large	1248	92	90	86	81	79	55	.24	Accept
GLE-Small	1123	86	89	87	80	77	55	.43	Accept
GLE-Large	2520	86	90	90	85	72	63	.34	Accept

Table D-4

Percentage of Students in Each Achievement Category Who Said "True" to Item 4, "The instructor seemed to lack energy".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1557	6	10	13	24	26	46	.38	Accept
FK-Large	2033	4	8	17	9	29	0	.30	Accept
PT-Small	1782	6	6	19	19	23	36	.33	Accept
PT-Large	2720	6	13	6	18	16	0	.11	Reject
A-Small	1337	10	12	9	13	23	26	.19	Reject
A-Large	1911	6	8	3	24	45	2	.48	Reject
SU-Small	1544	4	12	10	16	17	22	.23	Accept
SU-Large	1762	3	9	3	6	9	17	.25	Reject
PAB-Small	1760	6	10	14	11	18	35	.31	Accept
PAB-Large	2691	4	3	6	6	19	20	.31	Accept
C-Small	2003	10	6	6	14	15	27	.31	Accept
C-Large	1746	3	2	7	5	6	11	.18	Reject
I-Small	951	8	4	12	16	12	24	.23	Reject
I-Large	1252	1	7	10	6	11	0	.20	Reject
GLE-Small	1137	6	4	11	7	6	23	.33	Reject
GLE-Large	2525	6	4	2	10	20	13	.24	Reject

Table D-5

Percentage of Students in Each Achievement Category Who Said "True" to Item 5, "The instructor answered student questions as completely as reasonable".

Crit. Grp	N	Category 1	 2	 3	 4	 5	 6	C_c	Decision
FK-Small	1556	94	94	87	82	77	63	.35	Accept
FK-Large	2022	97	97	88	84	66	0	.40	Accept
PT-Small	1773	94	96	88	83	78	79	.28	Reject
PT-Large	2672	95	90	95	87	73	0	.33	Accept
A-Small	1322	96	87	95	89	82	68	.31	Accept
A-Large	1902	93	89	90	80	58	91	.38	Reject
SU-Small	1523	96	92	97	92	82	77	.30	Accept
SU-Large	1738	97	96	96	93	88	88	.22	Reject
PAB-Small	1735	98	94	89	88	83	68	.37	Accept
PAB-Large	2651	96	97	91	92	85	82	.23	Reject
C-Small	1983	96	97	94	86	86	77	.36	Reject
C-Large	1734	92	97	96	96	94	87	.22	Reject
I-Small	945	97	97	90	86	83	83	.27	Accept
I-Large	1228	98	95	83	93	84	100	.29	Reject
GLE-Small	1117	93	90	86	89	93	74	.31	Reject
GLE-Large	2490	97	96	96	96	91	85	.24	Reject

Table D-6

Percentage of Students in each Achievement Category Who Said "True" to Item 6, "He adjusted his pace to the needs of the class".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1544	80	81	76	68	72	41	.29	Reject
FK-Large	2026	84	81	59	63	53	0	.36	Accept
PT-Small	1765	86	82	69	71	63	56	.29	Accept
PT-Large	2707	72	80	75	55	63	0	.26	Reject
A-Small	1326	86	71	73	81	70	60	.26	Reject
A-Large	1908	77	71	82	54	51	21	.38	Accept
SU-Small	1524	86	86	79	80	73	61	.27	Reject
SU-Large	1752	91	88	86	64	72	51	.45	Accept
PAB-Small	1728	90	86	72	75	74	49	.38	Accept
PAB-Large	2673	87	91	76	61	62	46	.41	Accept
C-Small	1980	85	82	83	77	75	68	.22	Reject
C-Large	1735	83	93	88	59	80	57	.42	Reject
I-Small	947	85	79	72	77	79	71	.17	Reject
I-Large	1237	93	86	43	77	64	73	.46	Reject
GLE-Small	1118	84	79	82	84	76	67	.25	Reject
GLE-Large	2501	81	78	91	73	68	58	.30	Accept

Table D-7

Percentage of Students in Each Achievement Category Who Said "True" to Item 7, "Classtime was seldom or never wasted".

Crit. Grp	N	Category						C_c	Decision
		1	2	3	4	5	6		
FK-Small	1554	86	83	74	59	52	50	.40	Accept
FK-Large	2036	94	77	68	78	62	0	.35	Reject
PT-Small	1776	83	83	75	66	67	46	.28	Accept
PT-Large	2721	92	68	83	65	68	0	.33	Reject
A-Small	1329	82	69	74	61	68	77	.24	Reject
A-Large	1914	90	75	73	71	43	98	.43	Reject
SU-Small	1532	79	72	72	81	72	55	.24	Reject
SU-Large	1764	81	80	88	77	83	63	.26	Reject
PAB-Small	1743	77	77	71	65	60	41	.31	Accept
PAB-Large	2695	81	96	74	86	74	59	.31	Reject
C-Small	1999	76	83	76	72	80	71	.13	Reject
C-Large	1749	69	93	71	89	85	80	.25	Reject
I-Small	954	76	86	61	71	64	71	.27	Reject
I-Large	1255	87	94	95	82	64	73	.38	Reject
GLE-Small	1132	84	84	74	83	74	52	.41	Reject
GLE-Large	2530	87	93	78	82	75	73	.22	Reject

Table D-8

Percentage of Students in Each Achievement Category Who Said "True" to Item 8, " The instructor encouraged students to express themselves freely and openly".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1531	90	85	79	79	85	79	.17	Reject
FK-Large	2020	86	86	74	75	86	0	.20	Reject
PT-Small	1763	92	88	78	76	82	76	.24	Reject
PT-Large	2668	77	86	84	64	70	0	.27	Reject
A-Small	1320	88	83	95	91	81	77	.16	Reject
A-Large	1862	74	73	93	66	62	44	.32	Reject
SU-Small	1529	96	95	91	86	80	76	.32	Accept
SU-Large	1748	100	88	91	96	85	59	.50	Accept
PAB-Small	1733	95	90	83	91	87	87	.19	Reject
PAB-Large	2625	96	96	88	73	67	60	.44	Accept
C-Small	1986	94	93	90	92	79	74	.33	Accept
C-Large	1723	92	96	98	73	87	70	.40	Reject
I-Small	943	90	91	85	75	90	91	.27	Reject
I-Large	1242	92	95	91	88	81	100	.21	Reject
GLE-Small	1117	89	87	89	87	87	83	.10	Reject
GLE-Large	2486	96	89	98	85	65	70	.40	Accept

Table D-9

Percentage of Students in Each Achievement Category Who Said "True" to Item 9, "He was often incoherent and/or vague in what he was saying".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1549	16	16	20	32	43	60	.40	Accept
FK-Large	2024	7	12	30	30	62	0	.49	Accept
PT-Small	1772	12	16	29	29	32	45	.29	Accept
PT-Large	2701	9	20	14	32	41	0	.36	Accept
A-Small	1324	15	24	18	28	35	29	.24	Reject
A-Large	1910	10	20	14	43	55	32	.47	Reject
SU-Small	1534	16	16	11	17	32	36	.28	Reject
SU-Large	1754	7	14	9	34	21	29	.35	Reject
PAB-Small	1737	10	14	29	23	35	50	.40	Accept
PAB-Large	2677	7	6	15	20	26	35	.33	Accept
C-Small	1983	12	12	17	25	27	35	.31	Accept
C-Large	1733	5	3	12	11	18	31	.36	Accept
I-Small	951	10	13	22	23	40	36	.30	Accept
I-Large	1239	6	16	19	16	17	18	.20	Reject
GLE-Small	1120	14	8	20	15	23	37	.34	Accept
GLE-Large	2518	14	7	3	14	30	34	.37	Reject

Table D-10

Percentage of Students in Each Achievement Category Who Said "True" to Item 10, "The instructor seemed enthusiastic about the subject matter".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1556	94	93	89	75	84	49	.44	Reject
FK-Large	2035	98	95	89	94	81	0	.25	Reject
PT-Small	1778	95	91	86	90	73	72	.30	Accept
PT-Large	2716	95	93	95	88	87	0	.16	Reject
A-Small	1338	93	92	90	86	84	84	.16	Reject
A-Large	1911	95	92	95	88	60	96	.44	Reject
SU-Small	1545	96	92	95	86	86	77	.28	Accept
SU-Large	1764	100	91	98	96	93	91	.20	Reject
PAB-Small	1754	96	92	90	94	88	70	.32	Reject
PAB-Large	2690	98	96	96	96	85	91	.26	Reject
C-Small	2003	93	97	94	90	88	71	.38	Reject
C-Large	1749	96	91	95	98	94	93	.13	Reject
I-Small	953	96	96	90	87	90	86	.20	Reject
I-Large	1252	99	97	90	93	96	100	.19	Reject
GLE-Small	1130	95	95	94	92	94	76	.30	Reject
GLE-Large	2524	97	98	97	95	86	90	.23	Reject

Table D-11

Percentage of Students in Each Achievement Category Who Said "True" to Item 11, "He generally spoke too rapidly".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1558	20	15	8	7	18	17	.20	Reject
FK-Large	2035	20	7	19	23	36	0	.27	Reject
PT-Small	1783	12	19	12	9	14	4	.22	Reject
PT-Large	2722	19	14	16	20	15	0	.08	Reject
A-Small	1338	11	17	17	13	10	6	.12	Reject
A-Large	1913	13	12	14	17	5	49	.27	Reject
SU-Small	1548	12	7	16	6	21	15	.22	Reject
SU-Large	1765	7	9	17	38	24	11	.37	Reject
PAB-Small	1754	7	13	20	13	11	9	.18	Reject
PAB-Large	2693	11	4	23	27	11	11	.29	Reject
C-Small	2006	12	15	9	9	19	15	.12	Reject
C-Large	1745	4	3	11	46	16	26	.40	Reject
I-Small	954	13	29	12	13	8	19	.25	Reject
I-Large	1255	4	21	74	13	20	36	.60	Reject
GLE-Small	1131	12	5	13	14	15	9	.12	Reject
GLE-Large	2534	15	33	10	13	17	24	.23	Reject

Table D-12

Percentage of Students in Each Achievement Category Who Said "True" to Item 12, "He changed his approach to meet new situations".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1514	80	80	71	65	60	39	.32	Accept
FK-Large	1988	86	84	62	61	60	0	.37	Reject
PT-Small	1733	86	82	68	62	53	36	.50	Accept
PT-Large	2645	80	79	75	60	51	0	.31	Accept
A-Small	1307	82	80	69	70	61	42	.29	Accept
A-Large	1878	82	73	84	56	46	58	.38	Reject
SU-Small	1502	88	82	83	77	69	51	.35	Accept
SU-Large	1723	91	83	86	69	76	58	.36	Accept
PAB-Small	1711	86	80	74	75	71	48	.33	Accept
PAB-Large	2619	92	81	79	69	68	57	.35	Accept
C-Small	1948	83	83	83	71	74	60	.29	Accept
C-Large	1702	89	92	87	71	81	64	.35	Reject
I-Small	932	77	79	69	72	67	52	.19	Reject
I-Large	1218	92	85	59	79	71	82	.35	Reject
GLE-Small	1092	80	84	73	80	78	65	.23	Reject
GLE-Large	2439	75	84	92	74	62	62	.29	Reject

Table D-13

Percentage of Students in Each Achievement Category Who Said "True" to Item 13, "On several occasions, he seemed unprepared for class".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1547	10	6	13	24	33	40	.39	Accept
FK-Large	2048	2	9	11	4	11	0	.21	Reject
PT-Small	1776	10	11	16	16	16	11	.11	Reject
PT-Large	2708	2	12	5	18	10	0	.27	Reject
A-Small	1325	9	19	17	14	17	0	.18	Reject
A-Large	1911	3	6	8	17	28	2	.37	Reject
SU-Small	1529	11	16	13	6	15	26	.23	Reject
SU-Large	1757	9	13	5	15	8	21	.23	Reject
PAB-Small	1740	11	11	14	22	26	38	.31	Accept
PAB-Large	2687	7	5	7	6	9	11	.09	Reject
C-Small	1988	9	11	13	11	9	26	.27	Reject
C-Large	1741	20	1	9	1	7	10	.23	Reject
I-Small	945	10	8	15	17	35	17	.25	Reject
I-Large	1244	6	4	6	7	14	0	.18	Reject
GLE-Small	1120	10	9	4	11	11	35	.43	Reject
GLE-Large	2521	9	3	4	7	14	12	.17	Reject

Table D-14

Percentage of Students in Each Achievement Category Who Said "True" to Item 14, "Students made comments to the instructor without being asked".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1534	76	72	66	67	78	56	.17	Reject
FK-Large	2008	61	62	49	58	51	0	.16	Reject
PT-Small	1767	79	74	63	60	62	57	.24	Reject
PT-Large	2657	53	55	49	44	56	0	.11	Reject
A-Small	1303	75	72	73	75	76	61	.08	Reject
A-Large	1876	60	58	55	48	47	37	.17	Accept
SU-Small	1510	84	83	69	59	65	61	.33	Reject
SU-Large	1743	71	71	60	50	47	39	.33	Accept
PAB-Small	1714	81	71	68	72	72	73	.16	Reject
PAB-Large	2621	74	53	58	48	44	33	.36	Accept
C-Small	1980	81	75	74	69	56	65	.22	Reject
C-Large	1725	80	76	69	67	64	44	.36	Accept
I-Small	939	76	72	69	73	82	63	.13	Reject
I-Large	1223	77	68	35	56	41	82	.41	Reject
GLE-Small	1119	87	68	81	78	61	71	.25	Reject
GLE-Large	2490	61	62	83	40	43	52	.32	Reject

Table D-15

Percentage of Students in Each Achievement Category Who Said "True" to Item 15, "He spoke with expressiveness and variety in tone of voice".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1554	83	86	82	65	57	39	.42	Accept
FK-Large	2032	95	81	71	74	47	0	.42	Accept
PT-Small	1777	87	87	68	64	53	47	.41	Accept
PT-Large	2716	87	76	87	65	64	0	.32	Accept
A-Small	1336	84	79	80	79	74	71	.14	Reject
A-Large	1913	88	80	96	67	38	94	.50	Reject
SU-Small	1541	92	89	88	81	74	71	.28	Accept
SU-Large	1766	97	85	93	84	86	69	.34	Accept
PAB-Small	1753	93	84	80	77	75	55	.35	Accept
PAB-Large	2683	95	92	86	85	70	64	.38	Accept
C-Small	2002	89	88	87	81	84	64	.34	Reject
C-Large	1742	98	96	88	89	85	77	.28	Accept
I-Small	952	85	92	79	83	83	45	.32	Reject
I-Large	1247	99	89	64	86	82	100	.39	Reject
GLE-Small	1132	91	81	89	86	80	63	.37	Accept
GLE-Large	2529	85	95	96	80	62	72	.35	Reject

Table D-16

Percentage of Students in Each Achievement Category Who Said "True" to Item 16, "He demonstrated the importance and significance of his subject matter".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1543	93	89	87	77	73	36	.47	Accept
FK-Large	2029	96	92	83	86	61	0	.37	Accept
PT-Small	1770	92	87	86	84	70	58	.31	Accept
PT-Large	2720	92	90	91	83	80	0	.18	Reject
A-Small	1318	93	88	82	78	75	66	.31	Accept
A-Large	1909	92	92	91	83	59	72	.39	Reject
SU-Small	1521	92	88	94	86	82	69	.29	Reject
SU-Large	1759	94	90	97	82	90	87	.23	Reject
PAB-Small	1735	95	91	85	90	76	57	.42	Accept
PAB-Large	2683	96	91	90	90	84	80	.23	Accept
C-Small	1990	93	93	93	82	81	71	.35	Accept
C-Large	1740	93	99	90	92	91	85	.21	Reject
I-Small	952	96	96	76	85	87	83	.35	Reject
I-Large	1252	98	98	84	91	92	91	.24	Reject
GLE-Small	1128	87	91	90	86	88	74	.24	Reject
GLE-Large	2526	86	92	96	90	84	82	.18	Reject

Table D-17

Percentage of Students in Each Achievement Category Who Said "True" to Item 17, "His presentations were dry and dull".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1539	14	13	20	40	47	71	.50	Accept
FK-Large	2027	6	16	34	32	67	0	.51	Accept
PT-Small	1760	11	12	30	35	48	52	.43	Accept
PT-Large	2707	13	22	17	35	39	0	.31	Accept
A-Small	1308	14	22	28	34	40	37	.31	Accept
A-Large	1908	12	22	13	39	65	34	.48	Reject
SU-Small	1517	8	14	16	18	30	45	.40	Accept
SU-Large	1753	5	15	5	23	22	42	.44	Accept
PAB-Small	1716	7	16	27	25	30	58	.44	Accept
PAB-Large	2684	7	6	17	21	32	40	.37	Accept
C-Small	1976	13	10	13	25	23	67	.34	Accept
C-Large	1741	7	3	12	12	17	28	.32	Accept
I-Small	944	9	14	31	23	33	45	.36	Accept
I-Large	1240	3	12	22	15	28	0	.35	Accept
GLE-Small	1114	8	20	18	9	25	40	.43	Accept
GLE-Large	2515	8	8	6	20	35	33	.38	Accept

Table D-18

Percentage of Students in Each Achievement Category Who Said "True" to Item 18, "He requested and obtained student's questions and reactions".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1540	88	87	84	82	82	68	.18	Reject
FK-Large	2026	89	84	74	74	81	0	.22	Reject
PT-Small	1766	92	89	78	77	80	83	.24	Reject
PT-Large	2665	71	76	78	62	62	0	.21	Reject
A-Small	1304	88	84	94	84	81	78	.13	Reject
A-Large	1886	78	74	88	73	71	46	.23	Reject
SU-Small	1511	97	94	93	91	84	77	.31	Accept
SU-Large	1748	96	84	89	72	82	56	.43	Accept
PAB-Small	1717	94	92	81	89	83	81	.24	Reject
PAB-Large	2632	96	64	85	71	61	63	.41	Reject
C-Small	1984	94	93	88	89	83	75	.30	Accept
C-Large	1738	96	98	95	84	80	70	.38	Accept
I-Small	943	91	93	80	85	85	79	.22	Reject
I-Large	1236	94	90	80	82	58	91	.45	Accept
GLE-Small	1118	88	88	81	92	78	82	.19	Reject
GLE-Large	2486	80	88	97	80	61	68	.34	Reject

Table D-19

Percentage of Students in Each Achievement Category Who Said "True" to Item 19, "He made it clear how each topic fit into the course".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1517	91	86	81	71	62	40	.44	Accept
FK-Large	2020	91	86	74	77	58	0	.33	Accept
PT-Small	1748	87	87	82	76	62	54	.31	Accept
PT-Large	2698	87	81	87	67	74	0	.27	Reject
A-Small	1274	89	78	75	67	65	72	.33	Reject
A-Large	1910	88	81	84	65	47	60	.41	Reject
SU-Small	1481	89	77	87	89	73	65	.29	Reject
SU-Large	1759	84	83	89	70	81	73	.24	Reject
PAB-Small	1693	90	91	80	84	64	53	.43	Accept
PAB-Large	2667	89	90	80	83	77	64	.28	Accept
C-Small	1959	88	87	86	72	77	68	.29	Reject
C-Large	1739	84	94	86	87	85	74	.23	Reject
I-Small	926	89	91	72	76	63	67	.33	Reject
I-Large	1236	93	91	82	82	78	91	.25	Accept
GLE-Small	1095	88	86	82	77	82	70	.23	Reject
GLE-Large	2514	83	90	91	86	73	73	.24	Reject

Table D-20

Percentage of Students in Each Achievement Category Who Said "True" to Item 20, "He encouraged student comments even when they turned out to be incorrect or irrelevant".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1505	82	79	78	78	77	65	.13	Reject
FK-Large	2007	77	81	71	72	78	0	.12	Reject
PT-Small	1742	84	84	76	72	74	69	.18	Reject
PT-Large	2638	62	68	77	61	63	0	.19	Reject
A-Small	1300	82	75	84	83	75	74	.13	Reject
A-Large	1857	70	69	86	63	61	54	.23	Reject
SU-Small	1514	91	89	87	82	69	70	.30	Accept
SU-Large	1725	88	82	70	78	79	52	.35	Accept
PAB-Small	1709	90	88	74	81	78	74	.24	Reject
PAB-Large	2599	83	57	82	70	53	58	.35	Reject
C-Small	1953	86	85	83	85	70	71	.22	Reject
C-Large	1710	88	71	85	70	83	63	.30	Reject
I-Small	931	86	87	78	74	90	86	.18	Reject
I-Large	1223	86	82	32	85	59	100	.50	Reject
GLE-Small	1096	80	84	78	82	78	76	.09	Reject
GLE-Large	2435	81	86	95	68	62	66	.31	Reject

Table D-21

Percentage of Students in Each Achievement Category Who Said "True" to Item 21, "He presented examples of what he wanted by way of homework, papers, etc.".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1378	84	72	71	62	51	65	.31	Reject
FK-Large	1763	73	72	66	78	48	0	.23	Reject
PT-Small	1580	78	80	72	66	66	63	.20	Reject
PT-Large	2191	78	65	62	59	59	0	.20	Reject
A-Small	1174	78	68	57	62	54	79	.26	Reject
A-Large	1611	75	74	65	47	45	34	.36	Accept
SU-Small	1345	79	63	73	70	56	52	.27	Accept
SU-Large	1429	54	58	69	45	61	65	.21	Reject
PAB-Small	1520	75	74	75	61	47	45	.35	Reject
PAB-Large	2335	74	65	71	54	64	69	.21	Reject
C-Small	1781	74	71	77	54	60	69	.23	Reject
C-Large	1477	58	81	58	70	63	64	.18	Reject
I-Small	859	73	81	61	53	50	52	.30	Accept
I-Large	1018	74	78	43	57	53	70	.33	Reject
GLE-Small	969	69	67	75	75	61	60	.19	Reject
GLE-Large	2047	48	53	78	58	57	62	.21	Reject

Table D-22

Percentage of Students in Each Achievement Category Who Said "True" to Item 22, "He sometimes presented material in a humorous way".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1541	71	80	70	71	66	18	.38	Reject
FK-Large	2031	86	90	81	64	26	0	.53	Accept
PT-Small	1762	78	74	70	67	52	44	.27	Accept
PT-Large	2714	80	77	89	73	58	0	.33	Accept
A-Small	1317	78	74	83	72	62	43	.23	Reject
A-Large	1913	82	79	93	78	61	79	.25	Reject
SU-Small	1521	84	88	90	75	65	71	.29	Reject
SU-Large	1751	96	93	86	81	75	76	.29	Reject
PAB-Small	1731	91	90	60	75	74	65	.40	Reject
PAB-Large	2688	94	92	86	80	74	74	.27	Accept
C-Small	1987	88	83	85	80	54	58	.40	Accept
C-Large	1739	97	99	95	90	80	78	.32	Accept
I-Small	946	79	79	75	79	75	55	.17	Reject
I-Large	1249	98	68	97	82	85	100	.41	Reject
GLE-Small	1124	92	71	79	79	72	66	.29	Reject
GLE-Large	2517	95	96	98	85	78	62	.44	Accept

Table D-23

Percentage of Students in Each Achievement Category Who Said "True" to Item 23, "He lectured in a low monotone".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1518	9	7	10	19	32	47	.41	Accept
FK-Large	2029	3	12	19	11	33	0	.33	Accept
PT-Small	1728	10	9	24	24	33	49	.35	Accept
PT-Large	2708	8	17	8	23	19	0	.25	Reject
A-Small	1282	10	16	8	17	15	15	.14	Reject
A-Large	1908	9	10	6	17	52	2	.48	Reject
SU-Small	1485	6	9	6	12	16	20	.21	Reject
SU-Large	1758	3	10	4	11	7	21	.29	Reject
PAB-Small	1691	5	11	14	16	17	36	.33	Accept
PAB-Large	2679	2	5	9	7	21	25	.36	Accept
C-Small	1953	8	6	7	12	12	6	.31	Reject
C-Large	1737	2	3	5	3	9	12	.21	Reject
I-Small	938	10	5	13	7	6	29	.24	Reject
I-Large	1242	1	4	37	10	17	0	.45	Reject
GLE-Small	1088	7	17	5	8	11	26	.34	Reject
GLE-Large	2512	9	3	1	14	27	16	.31	Reject

Table D-24

Percentage of Students in Each Achievement Category Who Said "True" to Item 24, "He explained the reasons for his criticisms of students' academic performance".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1370	76	76	65	65	56	59	.22	Reject
FK-Large	1801	76	67	54	53	45	0	.30	Accept
PT-Small	1576	75	74	67	60	65	60	.18	Reject
PT-Large	2329	70	67	66	57	51	0	.18	Reject
A-Small	1167	77	65	66	66	65	62	.18	Reject
A-Large	1624	76	55	71	54	40	47	.34	Reject
SU-Small	1310	81	68	77	67	66	56	.24	Reject
SU-Large	1483	74	63	75	54	60	57	.24	Reject
PAB-Small	1496	83	74	69	72	52	61	.32	Reject
PAB-Large	2286	78	75	66	57	61	57	.24	Reject
C-Small	1762	83	77	73	61	54	59	.32	Accept
C-Large	1508	79	85	82	71	60	50	.39	Accept
I-Small	862	79	80	67	70	60	51	.24	Accept
I-Large	1074	86	70	63	54	62	46	.37	Accept
GLE-Small	984	77	72	81	73	73	56	.28	Reject
GLE-Large	2075	56	66	77	60	56	52	.19	Reject

Table D-25

Percentage of Students in Each Achievement Category Who Said "True" to Item 25, "He failed to state clearly the course requirements and deadlines".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1537	8	7	8	17	24	31	.29	Reject
FK-Large	1999	8	7	9	5	12	0	.10	Reject
PT-Small	1757	8	5	7	10	18	23	.21	Reject
PT-Large	2681	6	10	8	7	6	0	.07	Reject
A-Small	1285	8	12	15	9	12	6	.11	Reject
A-Large	1890	5	6	5	8	20	15	.22	Reject
SU-Small	1496	7	11	8	4	10	16	.16	Reject
SU-Large	1733	9	11	8	14	8	12	.10	Reject
PAB-Small	1696	7	7	7	10	23	21	.28	Reject
PAB-Large	2657	9	7	7	7	7	7	.04	Reject
C-Small	1979	7	10	7	11	7	11	.09	Reject
C-Large	1722	15	8	8	6	5	9	.12	Reject
I-Small	946	7	5	14	17	37	17	.32	Reject
I-Large	1230	3	8	14	11	11	0	.19	Reject
GLE-Small	1103	10	4	6	9	6	19	.25	Reject
GLE-Large	2497	13	7	5	7	8	10	.12	Reject

Table D-26

Percentage of Students in Each Achievement Category Who Said "True" to Item 26, "He attempted to induce silent students to participate".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1493	56	52	52	58	48	39	.12	Reject
FK-Large	1943	43	32	35	12	24	0	.31	Reject
PT-Small	1724	60	52	45	47	60	72	.20	Reject
PT-Large	2489	38	26	32	19	12	0	.26	Accept
A-Small	1298	54	42	75	49	42	79	.25	Reject
A-Large	1794	42	25	39	18	26	20	.29	Reject
SU-Small	1509	71	70	67	61	52	41	.28	Accept
SU-Large	1657	51	32	37	44	30	15	.32	Accept
PAB-Small	1694	67	55	51	46	44	41	.26	Accept
PAB-Large	2464	47	31	37	26	17	23	.31	Reject
C-Small	1938	75	72	53	61	37	36	.43	Accept
C-Large	1660	63	36	47	39	14	27	.37	Reject
I-Small	923	57	56	52	70	43	71	.21	Reject
I-Large	1175	56	33	9	20	20	73	.49	Reject
GLE-Small	1080	63	63	62	55	62	48	.18	Reject
GLE-Large	2313	45	35	54	23	23	20	.34	Accept

Table D-27

Percentage of Students in Each Achievement Category Who Said "True" to Item 27, "He summarized material in a manner which aided retention".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1515	79	78	69	62	51	29	.38	Accept
FK-Large	2022	84	77	58	56	35	0	.43	Accept
PT-Small	1743	80	77	61	61	50	55	.32	Reject
PT-Large	2699	82	72	78	53	47	0	.37	Accept
A-Small	1259	75	67	70	60	53	75	.23	Reject
A-Large	1900	85	67	72	51	33	40	.47	Accept
SU-Small	1475	79	66	74	73	60	55	.24	Reject
SU-Large	1752	81	72	86	68	65	58	.30	Reject
PAB-Small	1664	81	79	64	65	53	37	.40	Accept
PAB-Large	2664	85	92	69	62	66	53	.33	Accept
C-Small	1962	79	78	74	65	70	53	.30	Accept
C-Large	1727	72	90	80	65	67	62	.27	Reject
I-Small	934	77	74	60	68	57	66	.22	Reject
I-Large	1231	87	76	87	71	61	64	.32	Reject
GLE-Small	1083	75	65	79	73	73	53	.30	Reject
GLE-Large	2500	78	81	81	73	58	56	.30	Accept

Table D-28

Percentage of Students in Each Achievement Category Who Said "True" to Item 28, "He stimulated students to intellectual effort beyond that required by most courses".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1495	63	48	30	22	24	11	.46	Accept
FK-Large	1987	73	47	30	21	12	0	.55	Accept
PT-Small	1734	72	55	38	26	20	15	.53	Accept
PT-Large	2650	61	48	44	25	18	0	.38	Accept
A-Small	1267	58	45	36	30	31	17	.34	Accept
A-Large	1864	65	32	44	20	14	53	.50	Reject
SU-Small	1474	72	58	55	36	46	19	.45	Accept
SU-Large	1732	73	55	53	42	30	29	.41	Accept
PAB-Small	1669	60	40	45	43	43	25	.28	Accept
PAB-Large	2627	68	57	46	41	35	26	.37	Accept
C-Small	1931	58	53	49	44	40	30	.29	Accept
C-Large	1702	64	72	65	59	39	32	.42	Accept
I-Small	922	56	57	36	37	38	22	.30	Accept
I-Large	1222	74	54	50	41	41	73	.38	Reject
GLE-Small	1085	70	58	55	55	43	28	.30	Accept
GLE-Large	2471	61	62	82	42	31	28	.45	Accept

Table D-29

Percentage of Students in Each Achievement Category Who Said "True" to Item 29, "He lectured in a rambling fashion".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1476	18	14	22	32	44	58	.39	Accept
FK-Large	2015	10	14	33	23	51	0	.40	Accept
PT-Small	1683	16	17	30	28	34	41	.25	Accept
PT-Large	2695	10	24	20	39	31	0	.30	Accept
A-Small	1247	18	23	19	32	37	4	.24	Reject
A-Large	1905	9	18	15	41	58	11	.49	Reject
SU-Small	1446	24	19	15	13	28	38	.26	Reject
SU-Large	1740	9	19	9	39	22	41	.42	Reject
PAB-Small	1644	16	20	34	28	38	49	.33	Accept
PAB-Large	2671	10	11	21	15	25	40	.33	Accept
C-Small	1903	19	17	19	25	14	29	.17	Reject
C-Large	1724	13	6	13	11	16	28	.29	Reject
I-Small	920	20	16	31	30	42	33	.24	Reject
I-Large	1223	6	15	27	15	35	36	.38	Accept
GLE-Small	1051	14	20	17	19	25	43	.37	Accept
GLE-Large	2493	22	11	8	16	40	29	.32	Reject

Table D-30

Percentage of Students in Each Achievement Category Who Said "True" to Item 30, "He understood student comments and questions even when these were not clearly expressed".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1535	84	80	76	63	55	44	.36	Accept
FK-Large	2015	91	90	75	65	49	0	.43	Accept
PT-Small	1755	85	87	72	63	67	55	.32	Accept
PT-Large	2645	87	81	85	67	52	0	.37	Accept
A-Small	1317	86	72	79	78	63	40	.32	Accept
A-Large	1874	87	74	81	59	57	81	.35	Reject
SU-Small	1515	90	86	90	82	63	58	.39	Accept
SU-Large	1729	89	90	86	83	81	71	.23	Accept
PAB-Small	1731	90	86	76	75	70	56	.34	Accept
PAB-Large	2610	91	91	78	80	72	65	.29	Accept
C-Small	1969	87	83	85	78	65	65	.30	Accept
C-Large	1719	95	91	90	77	89	73	.30	Reject
I-Small	942	87	84	73	71	71	62	.26	Accept
I-Large	1231	93	83	77	88	80	91	.22	Reject
GLE-Small	1111	82	85	70	78	77	58	.32	Reject
GLE-Large	2445	89	93	94	86	81	70	.30	Reject

Table D-31

Percentage of Students in Each Achievement Category Who Said "True" to Item 31, "He stated clearly the objectives of the course".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1536	91	82	84	71	68	40	.41	Accept
FK-Large	2020	92	87	80	85	67	0	.27	Reject
PT-Small	1756	87	87	83	80	67	38	.34	Accept
PT-Large	2706	92	87	87	74	76	0	.25	Reject
A-Small	1286	91	83	78	77	68	64	.31	Accept
A-Large	1904	92	82	89	77	55	77	.36	Reject
SU-Small	1485	88	78	87	89	83	68	.24	Reject
SU-Large	1746	89	82	92	69	90	71	.33	Reject
PAB-Small	1702	91	89	84	86	68	57	.39	Accept
PAB-Large	2673	92	95	84	89	82	74	.24	Reject
C-Small	1976	91	87	86	77	80	69	.29	Accept
C-Large	1731	84	94	89	90	90	72	.23	Reject
I-Small	948	89	92	83	79	81	67	.23	Accept
I-Large	1242	94	96	73	88	82	100	.29	Reject
GLE-Small	1111	82	81	89	78	84	66	.27	Reject
GLE-Large	2516	77	95	94	88	75	78	.25	Reject

Table D-32

Percentage of Students in Each Achievement Category Who Said "True" to Item 32, "He became angry or sarcastic when corrected or challenged by a student".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1535	4	4	12	17	14	17	.25	Reject
FK-Large	2023	12	2	9	6	15	0	.21	Reject
PT-Small	1761	6	2	4	11	15	9	.23	Reject
PT-Large	2675	8	5	4	10	8	0	.13	Reject
A-Small	1315	3	10	5	7	17	3	.26	Reject
A-Large	1891	6	5	6	12	5	12	.15	Reject
SU-Small	1513	3	3	7	6	12	9	.19	Reject
SU-Large	1739	4	6	8	3	12	11	.17	Reject
PAB-Small	1732	4	6	7	5	7	10	.09	Reject
PAB-Large	2653	6	1	5	11	7	11	.16	Reject
C-Small	1984	3	3	4	4	11	13	.25	Reject
C-Large	1733	0	11	11	32	3	10	.36	Reject
I-Small	944	1	5	8	22	2	10	.37	Reject
I-Large	1239	4	2	41	2	6	0	.55	Reject
GLE-Small	1122	12	4	8	9	5	12	.13	Reject
GLE-Large	2483	3	2	1	4	5	7	.13	Reject

Table D-33

Percentage of Students in Each Achievement Category Who Said "True" to Item 33, "He failed to differentiate between significant and nonsignificant material".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1534	19	16	19	28	38	54	.32	Accept
FK-Large	2026	20	18	33	36	57	0	.34	Accept
PT-Small	1763	17	13	34	30	42	53	.34	Accept
PT-Large	2693	19	20	24	40	44	0	.28	Accept
A-Small	1282	19	28	33	26	38	13	.22	Reject
A-Large	1908	16	29	25	51	57	46	.42	Reject
SU-Small	1489	19	21	20	22	37	34	.21	Reject
SU-Large	1742	19	24	13	31	39	37	.31	Reject
PAB-Small	1695	12	17	27	26	37	50	.37	Accept
PAB-Large	2673	16	5	27	38	27	41	.32	Reject
C-Small	1972	17	15	21	27	30	32	.22	Accept
C-Large	1732	27	6	18	37	31	36	.29	Reject
I-Small	946	19	21	30	26	34	33	.18	Reject
I-Large	1234	14	25	37	32	33	9	.28	Reject
GLE-Small	1110	16	27	13	16	24	40	.35	Reject
GLE-Large	2495	22	25	14	27	36	41	.25	Accept

Table D-34

Percentage of Students in Each Achievement Category Who Said "True" to Item 34, "He introduced stimulating ideas about the subject".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1522	81	77	65	56	51	23	.43	Accept
FK-Large	2011	92	81	63	58	34	0	.49	Accept
PT-Small	1748	84	75	66	62	50	38	.37	Accept
PT-Large	2698	81	80	79	63	55	0	.30	Accept
A-Small	1314	83	74	64	57	58	45	.35	Accept
A-Large	1894	80	77	91	60	45	56	.39	Reject
SU-Small	1509	92	81	89	73	64	47	.45	Accept
SU-Large	1744	95	88	88	78	79	65	.34	Accept
PAB-Small	1722	91	81	66	71	62	39	.46	Accept
PAB-Large	2668	90	90	81	79	67	57	.35	Accept
C-Small	1951	83	85	81	71	63	50	.40	Accept
C-Large	1720	86	93	88	74	87	65	.37	Reject
I-Small	938	88	86	70	70	62	43	.37	Accept
I-Large	1233	92	89	65	88	84	100	.30	Reject
GLE-Small	1112	89	76	78	74	68	56	.35	Accept
GLE-Large	2498	91	91	96	81	68	61	.41	Accept

Table D-35

Percentage of Students in Each Achievement Category Who Said "True" to Item 35, "He repeated material to the point of monotony".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1543	9	7	10	25	30	20	.32	Reject
FK-Large	2026	3	10	16	18	41	0	.39	Accept
PT-Small	1760	7	6	15	21	15	32	.28	Reject
PT-Large	2703	6	14	10	17	26	0	.24	Accept
A-Small	1305	9	11	15	9	20	23	.17	Reject
A-Large	1909	5	13	7	19	26	6	.29	Reject
SU-Small	1502	7	4	8	9	18	27	.32	Accept
SU-Large	1755	3	7	4	15	10	26	.35	Accept
PAB-Small	1710	6	11	13	16	17	26	.24	Accept
PAB-Large	2671	3	4	9	11	12	23	.28	Accept
C-Small	1983	12	9	7	11	11	14	.11	Reject
C-Large	1740	4	3	5	3	7	14	.22	Reject
I-Small	943	5	8	19	14	26	24	.20	Accept
I-Large	1236	3	5	20	5	22	0	.37	Reject
GLE-Small	1118	5	3	15	5	13	23	.33	Reject
GLE-Large	2514	6	4	1	10	12	17	.22	Reject

Table D-36

Percentage of Students in Each Achievement Category Who Said "True" to Item 36, "He displayed favoritism".

Crit. Grp	N	Category						C_c	Decision
		1	2	3	4	5	6		
FK-Small	1547	11	10	16	15	15	11	.10	Reject
FK-Large	2027	13	9	8	7	8	0	.12	Reject
PT-Small	1765	11	7	12	17	9	2	.15	Reject
PT-Large	2697	7	8	5	6	5	0	.07	Reject
A-Small	1328	13	16	16	7	18	3	.14	Reject
A-Large	1897	7	12	7	3	4	6	.16	Reject
SU-Small	1524	12	11	16	16	11	10	.10	Reject
SU-Large	1753	11	7	7	2	4	12	.19	Reject
PAB-Small	1738	11	15	17	12	9	17	.12	Reject
PAB-Large	2670	9	5	11	5	8	7	.12	Reject
C-Small	1989	10	17	11	6	15	9	.15	Reject
C-Large	1736	12	8	12	6	4	7	.15	Reject
I-Small	952	14	9	14	23	14	17	.17	Reject
I-Large	1237	12	9	3	2	4	0	.25	Reject
GLE-Small	1125	16	19	12	9	12	15	.11	Reject
GLE-Large	2494	6	3	9	4	6	7	.09	Reject

Table D-37

Percentage of Students in Each Achievement Category Who Said "True" to Item 37, "He related course material to real life situations".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1503	92	91	87	80	68	27	.53	Accept
FK-Large	2002	95	94	87	89	79	0	.22	Reject
PT-Small	1722	88	83	82	85	65	68	.26	Reject
PT-Large	2650	87	89	93	89	87	0	.10	Reject
A-Small	1292	95	87	91	78	77	71	.31	Accept
A-Large	1898	88	96	98	88	68	77	.35	Reject
SU-Small	1498	95	88	94	87	86	78	.22	Reject
SU-Large	1718	97	93	98	83	95	90	.27	Reject
PAB-Small	1698	97	97	88	83	73	61	.47	Accept
PAB-Large	2623	98	82	93	95	83	81	.31	Reject
C-Small	1936	92	92	92	81	86	68	.37	Reject
C-Large	1697	96	98	95	96	97	84	.30	Reject
I-Small	923	97	96	89	82	90	81	.28	Reject
I-Large	1217	98	99	93	94	92	91	.18	Reject
GLE-Small	1073	83	75	86	83	91	78	.16	Reject
GLE-Large	2460	83	95	99	94	91	86	.23	Reject

Table D-38

Percentage of Students in Each Achievement Category Who Said "True" to Item 38, "He was available for individual help".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1521	96	95	93	96	92	87	.13	Reject
FK-Large	1966	94	92	88	95	81	0	.19	Reject
PT-Small	1754	97	95	94	93	91	98	.12	Reject
PT-Large	2602	92	90	92	87	91	0	.08	Reject
A-Small	1304	96	91	98	93	94	90	.14	Reject
A-Large	1825	92	89	94	85	77	90	.20	Reject
SU-Small	1487	95	90	95	96	85	93	.18	Reject
SU-Large	1678	92	95	98	89	90	90	.18	Reject
PAB-Small	1688	93	98	95	92	82	86	.28	Reject
PAB-Large	2591	97	98	93	90	91	85	.20	Reject
C-Small	1948	98	98	94	85	93	90	.26	Reject
C-Large	1665	97	99	95	90	93	85	.25	Reject
I-Small	930	95	94	92	92	92	85	.11	Reject
I-Large	1204	95	92	93	90	95	100	.12	Reject
GLE-Small	1111	94	97	95	94	98	93	.12	Reject
GLE-Large	2364	87	95	98	89	92	84	.19	Reject

Table D-39

Percentage of Students in Each Achievement Category Who Said "True" to Item 39, "His speech was easy to understand".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1553	90	91	93	94	82	79	.19	Reject
FK-Large	2033	96	93	89	87	57	0	.42	Reject
PT-Small	1776	94	95	90	86	85	77	.21	Reject
PT-Large	2708	94	89	93	86	80	0	.22	Reject
A-Small	1336	93	90	96	84	90	94	.16	Reject
A-Large	1911	95	95	97	87	72	91	.34	Reject
SU-Small	1536	96	93	95	95	93	90	.11	Reject
SU-Large	1761	98	96	98	71	94	94	.45	Reject
PAB-Small	1750	97	93	92	91	84	83	.26	Reject
PAB-Large	2681	99	98	92	93	90	84	.24	Reject
C-Small	1994	94	92	95	92	96	87	.15	Reject
C-Large	1743	99	100	97	93	97	86	.29	Reject
I-Small	951	95	93	95	93	94	67	.31	Reject
I-Large	1245	98	97	81	96	96	91	.29	Reject
GLE-Small	1127	90	95	92	91	90	85	.13	Reject
GLE-Large	2525	93	93	96	94	81	89	.23	Reject

Table D-40

Percentage of Students in Each Achievement Category Who Said "True" to Item 40, "He often dismissed class late".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1554	20	8	10	7	21	14	.23	Reject
FK-Large	2027	8	6	7	4	19	0	.19	Reject
PT-Small	1772	19	10	14	11	12	15	.14	Reject
PT-Large	2706	13	12	10	9	9	0	.06	Reject
A-Small	1304	13	16	20	8	6	19	.16	Reject
A-Large	1905	14	5	7	6	5	29	.25	Reject
SU-Small	1500	18	7	19	8	7	14	.21	Reject
SU-Large	1752	6	2	3	12	9	8	.18	Reject
PAB-Small	1712	10	6	17	9	9	16	.18	Reject
PAB-Large	2678	7	6	4	6	19	10	.26	Reject
C-Small	1990	12	11	11	10	9	10	.05	Reject
C-Large	1740	7	4	18	1	6	5	.27	Reject
I-Small	947	14	21	9	12	19	10	.18	Reject
I-Large	1244	5	7	40	6	19	0	.43	Reject
GLE-Small	1121	14	1	15	17	9	16	.17	Reject
GLE-Large	2511	4	5	5	4	8	6	.11	Reject

Table D-41

Percentage of Students in Each Achievement Category Who Said "True" to Item 41, "He used leading questions to force students to answer their own questions".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1481	55	56	48	56	49	38	.13	Reject
FK-Large	1952	61	44	42	34	26	0	.30	Accept
PT-Small	1721	66	57	55	43	49	49	.23	Reject
PT-Large	2538	55	42	53	31	17	0	.35	Accept
A-Small	1262	54	52	60	55	50	32	.11	Reject
A-Large	1806	59	36	70	38	24	58	.40	Reject
SU-Small	1471	74	68	69	51	57	43	.30	Reject
SU-Large	1650	62	41	56	54	52	30	.29	Reject
PAB-Small	1654	61	58	50	51	61	55	.12	Reject
PAB-Large	2506	61	39	64	38	36	40	.33	Reject
C-Small	1896	66	62	59	58	48	47	.21	Accept
C-Large	1651	77	70	56	61	36	40	.36	Accept
I-Small	901	60	56	45	60	59	76	.21	Reject
I-Large	1186	80	46	36	45	33	91	.49	Reject
GLE-Small	1068	66	53	55	66	58	50	.20	Reject
GLE-Large	2359	55	67	87	32	44	33	.45	Reject

Table D-42

Percentage of Students in Each Achievement Category Who Said "True" to Item 42, "He told the class when they had done a particularly good job".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1484	82	77	74	62	62	40	.33	Accept
FK-Large	1934	81	76	61	67	39	0	.35	Accept
PT-Small	1702	80	81	68	73	63	40	.27	Accept
PT-Large	2528	70	74	64	56	59	0	.19	Reject
A-Small	1294	78	72	65	62	63	76	.20	Reject
A-Large	1809	73	66	63	55	53	76	.21	Reject
SU-Small	1469	87	76	83	73	57	56	.34	Accept
SU-Large	1592	79	72	77	35	62	63	.40	Reject
PAB-Small	1661	86	84	74	75	54	50	.41	Accept
PAB-Large	2528	88	92	68	65	66	43	.42	Accept
C-Small	1913	85	84	81	71	54	58	.37	Accept
C-Large	1615	72	80	94	73	59	61	.36	Reject
I-Small	915	75	83	71	66	63	49	.24	Accept
I-Large	1190	89	80	55	53	80	36	.46	Reject
GLE-Small	1079	85	71	86	81	66	67	.27	Reject
GLE-Large	2249	53	78	80	56	60	58	.24	Reject

Table D-43

Percentage of Students in Each Achievement Category Who Said "True" to Item 43, "The examinations gave a balanced coverage to major topics".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1448	90	86	86	77	65	44	.41	Accept
FK-Large	2017	84	82	77	81	72	0	.13	Reject
PT-Small	1597	88	88	79	79	71	81	.21	Reject
PT-Large	2634	88	84	84	64	75	0	.28	Reject
A-Small	1087	85	72	81	77	69	100	.24	Reject
A-Large	1880	88	76	81	63	67	55	.32	Accept
SU-Small	1256	82	70	80	87	76	77	.19	Reject
SU-Large	1556	88	84	89	77	71	72	.25	Reject
PAB-Small	1419	85	85	77	79	59	68	.32	Reject
PAB-Large	2641	91	95	79	71	82	69	.29	Reject
C-Small	1706	82	91	82	74	79	72	.22	Reject
C-Large	1644	84	96	87	77	81	75	.24	Reject
I-Small	797	74	93	75	70	69	75	.26	Reject
I-Large	1119	87	83	89	79	81	73	.14	Reject
GLE-Small	881	81	78	81	87	80	66	.28	Reject
GLE-Large	2354	91	85	85	81	77	74	.19	Accept

Table D-44

Percentage of Students in Each Achievement Category Who Said "True" to Item 44, "The instructor gave ample notice for lengthy assignments".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1350	96	93	92	90	81	86	.23	Reject
FK-Large	1770	96	92	92	97	88	0	.16	Reject
PT-Small	1564	96	93	93	91	91	84	.13	Reject
PT-Large	2229	91	91	94	93	96	0	.09	Reject
A-Small	1159	95	90	96	91	94	100	.15	Reject
A-Large	1619	91	96	94	89	88	89	.14	Reject
SU-Small	1360	94	97	94	93	95	94	.09	Reject
SU-Large	1438	96	94	97	84	94	91	.24	Reject
PAB-Small	1478	94	95	93	91	86	95	.17	Reject
PAB-Large	2232	97	96	96	91	90	88	.19	Reject
C-Small	1800	96	94	94	93	94	90	.11	Reject
C-Large	1454	93	99	93	89	93	92	.13	Reject
I-Small	869	95	97	89	89	64	83	.35	Reject
I-Large	1038	98	95	98	90	92	82	.20	Reject
GLE-Small	965	91	94	95	95	95	92	.08	Reject
GLE-Large	2123	92	95	96	93	94	92	.07	Reject

Table D-45

Percentage of Students in Each Achievement Category Who Said "True" to Item 45, "The textbook (or substitute reading materials) seemed out-of-date to me".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1427	9	11	12	14	23	19	.18	Reject
FK-Large	1988	16	11	13	16	15	0	.07	Reject
PT-Small	1658	7	8	10	18	17	29	.22	Reject
PT-Large	2662	12	9	14	15	15	0	.09	Reject
A-Small	1172	10	8	18	18	19	21	.19	Reject
A-Large	1878	9	14	13	19	16	8	.14	Reject
SU-Small	1374	11	8	10	16	12	20	.16	Reject
SU-Large	1646	14	8	11	17	25	12	.22	Reject
PAB-Small	1563	7	11	15	7	12	34	.30	Reject
PAB-Large	2641	11	10	9	18	8	10	.16	Reject
C-Small	1883	11	5	13	12	11	12	.12	Reject
C-Large	1686	13	6	10	6	28	16	.28	Reject
I-Small	870	9	7	15	22	22	23	.24	Accept
I-Large	1178	9	13	20	24	32	9	.30	Accept
GLE-Small	1018	4	24	12	12	14	21	.25	Reject
GLE-Large	2460	12	34	10	8	8	19	.30	Reject

Table D-46

Percentage of Students in Each Achievement Category Who Said "True" to Item 46, "Too much of the course material repeated content covered by courses I had taken previously".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1514	5	4	8	14	16	20	.24	Reject
FK-Large	2012	3	6	11	9	11	0	.16	Reject
PT-Small	1750	4	5	5	14	5	4	.22	Reject
PT-Large	2660	5	6	5	10	9	0	.12	Reject
A-Small	1259	7	9	13	17	16	3	.18	Reject
A-Large	1904	4	10	5	7	7	2	.15	Reject
SU-Small	1480	9	5	8	7	9	23	.25	Reject
SU-Large	1734	6	8	9	9	7	9	.05	Reject
PAB-Small	1661	8	8	13	11	8	21	.17	Reject
PAB-Large	2649	10	2	11	4	7	8	.15	Reject
C-Small	1970	6	6	8	7	14	12	.13	Reject
C-Large	1707	8	3	11	7	4	5	.15	Reject
I-Small	924	6	10	15	9	18	7	.18	Reject
I-Large	1215	3	7	21	5	10	9	.28	Reject
GLE-Small	1083	3	2	8	6	14	14	.23	Reject
GLE-Large	2489	3	3	3	7	10	8	.15	Reject

Table D-47

Percentage of Students in Each Achievement Category Who Said "True" to Item 47, "Examination questions were often unclear".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1440	21	24	22	44	35	52	.29	Reject
FK-Large	2015	20	37	35	38	66	0	.33	Accept
PT-Small	1588	21	16	39	31	43	26	.29	Reject
PT-Large	2626	15	30	31	39	52	0	.32	Accept
A-Small	1081	21	41	32	32	30	3	.27	Reject
A-Large	1873	17	41	53	54	46	37	.42	Reject
SU-Small	1249	27	24	26	21	34	42	.21	Reject
SU-Large	1546	18	38	29	31	50	41	.29	Reject
PAB-Small	1404	14	27	27	32	36	33	.24	Reject
PAB-Large	2636	27	9	39	45	35	43	.27	Reject
C-Small	1706	21	15	26	26	39	38	.26	Reject
C-Large	1636	19	18	19	24	43	43	.33	Accept
I-Small	786	24	11	36	29	40	35	.28	Reject
I-Large	1116	15	28	8	45	32	36	.39	Reject
GLE-Small	881	19	23	16	22	32	45	.35	Accept
GLE-Large	2352	14	21	14	40	31	42	.31	Accept

Table D-48

Percentage of Students in Each Achievement Category Who Said "True" to Item 48, "Out-of-class assignments were reasonable in length".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1356	88	91	87	91	82	71	.20	Reject
FK-Large	1768	88	88	87	88	84	0	.05	Reject
PT-Small	1574	88	89	87	94	86	95	.12	Reject
PT-Large	2207	89	86	88	88	85	0	.05	Reject
A-Small	1152	89	85	80	85	80	86	.13	Reject
A-Large	1622	87	85	88	85	87	82	.05	Reject
SU-Small	1373	86	90	85	91	71	88	.23	Reject
SU-Large	1411	93	91	92	86	84	91	.14	Reject
PAB-Small	1508	89	92	86	80	84	86	.15	Reject
PAB-Large	2217	93	88	88	84	84	87	.14	Reject
C-Small	1840	91	83	91	77	90	81	.22	Reject
C-Large	1422	94	92	90	86	88	88	.09	Reject
I-Small	864	89	82	82	68	77	87	.26	Reject
I-Large	1013	91	87	95	84	86	64	.18	Reject
GLE-Small	981	93	96	87	88	89	89	.11	Reject
GLE-Large	2087	88	87	92	88	88	86	.06	Reject

Table D-49

Percentage of Students in Each Achievement Category Who Said "True" to Item 49, "The textbook or substitute reading materials) contained too little illustrative material".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1407	14	19	17	21	32	48	.27	Reject
FK-Large	1975	16	14	16	25	24	0	.14	Reject
PT-Small	1626	17	17	17	16	24	29	.11	Reject
PT-Large	2642	18	20	12	19	27	0	.17	Reject
A-Small	1162	16	17	10	20	26	17	.14	Reject
A-Large	1868	19	19	5	19	19	19	.18	Reject
SU-Small	1338	16	23	14	12	24	17	.17	Reject
SU-Large	1624	18	17	13	24	13	15	.13	Reject
PAB-Small	1524	17	13	20	19	23	39	.23	Reject
PAB-Large	2608	14	12	14	15	21	16	.11	Reject
C-Small	1839	20	15	16	20	21	20	.07	Reject
C-Large	1668	13	15	21	17	17	18	.08	Reject
I-Small	850	17	14	27	30	20	13	.21	Reject
I-Large	1151	16	19	23	21	22	18	.08	Reject
GLE-Small	993	9	16	15	19	20	21	.15	Reject
GLE-Large	2438	21	19	14	11	17	26	.21	Reject

Table D-50

Percentage of Students in Each Achievement Category Who Said "True" to Item 50, "Too much time was spent on too few topics - the course needs more breadth".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1517	4	11	11	18	27	44	.39	Accept
FK-Large	2010	3	8	13	14	13	0	.20	Reject
PT-Small	1753	9	10	17	15	17	43	.24	Reject
PT-Large	2680	4	14	8	19	16	0	.24	Reject
A-Small	1262	10	16	13	13	28	7	.23	Reject
A-Large	1896	5	10	15	9	27	6	.28	Reject
SU-Small	1480	8	20	10	14	22	17	.20	Reject
SU-Large	1733	6	12	4	14	13	17	.21	Reject
PAB-Small	1661	15	9	12	13	30	31	.31	Reject
PAB-Large	2639	6	6	11	11	13	14	.13	Reject
C-Small	1970	11	10	15	22	28	16	.20	Reject
C-Large	1720	7	3	10	6	14	8	.15	Reject
I-Small	912	10	10	17	8	41	14	.31	Reject
I-Large	1228	4	4	5	10	28	0	.40	Accept
GLE-Small	1089	12	13	9	10	13	17	.13	Reject
GLE-Large	2505	8	4	6	9	15	13	.17	Reject

Table D-51

Percentage of Students in Each Achievement Category Who Said "True" to Item 51, "Examinations stressed memorization of information for which later recall seemed unreasonable".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1451	27	22	22	41	41	44	.25	Reject
FK-Large	2012	35	39	49	36	47	0	.17	Reject
PT-Small	1614	20	22	30	39	51	53	.33	Accept
PT-Large	2633	26	24	30	47	53	0	.31	Accept
A-Small	1093	20	38	39	37	32	13	.26	Reject
A-Large	1876	19	41	25	47	55	81	.42	Accept
SU-Small	1270	15	14	25	34	34	41	.31	Accept
SU-Large	1567	11	27	26	24	33	63	.41	Accept
PAB-Small	1437	19	20	35	26	22	41	.24	Reject
PAB-Large	2631	26	27	34	46	32	53	.28	Reject
C-Small	1745	18	16	29	22	33	46	.34	Accept
C-Large	1644	37	13	16	43	33	42	.33	Reject
I-Small	805	29	18	38	31	29	53	.24	Reject
I-Large	1137	16	31	29	33	33	27	.22	Reject
GLE-Small	905	7	50	21	27	55	47	.46	Reject
GLE-Large	2374	31	27	10	41	30	42	.25	Reject

Table D-52

Percentage of Students in Each Achievement Category Who Said "True" to Item 52, "Assigned readings were pertinent to the topics presented in Class".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1253	97	95	88	94	92	77	.26	Reject
FK-Large	1813	94	93	89	93	91	0	.10	Reject
PT-Small	1512	97	94	94	92	88	97	.16	Reject
PT-Large	2415	94	90	92	90	91	0	.07	Reject
A-Small	1089	95	92	96	90	91	86	.12	Reject
A-Large	1707	95	94	94	91	84	97	.18	Reject
SU-Small	1304	96	94	93	95	89	89	.14	Reject
SU-Large	1590	94	91	96	87	90	90	.14	Reject
PAB-Small	1440	95	94	92	96	91	87	.13	Reject
PAB-Large	2395	94	90	95	94	91	88	.12	Reject
C-Small	1718	95	97	87	91	95	89	.19	Reject
C-Large	1552	98	99	92	98	92	88	.22	Reject
I-Small	824	96	96	81	88	93	87	.29	Reject
I-Large	1117	98	91	85	93	89	91	.21	Reject
GLE-Small	892	93	91	96	95	94	87	.18	Reject
GLE-Large	2236	90	93	97	94	93	89	.12	Reject

Table D-53

Percentage of Students in Each Achievement Category Who Said "True" to Item 53, "Assigned readings (including text) were reasonably clear and understandable".

		Category							
Crit. Grp	N	1	2	3	4	5	6	Cc	Decision
FK-Small	1336	92	87	90	88	76	55	.35	Accept
FK-Large	1894	88	84	84	83	81	0	.09	Reject
PT-Small	1600	87	88	91	88	76	88	.17	Reject
PT-Large	2531	82	80	87	83	84	0	.11	Reject
A-Small	1137	92	87	89	86	85	92	.13	Reject
A-Large	1805	84	90	92	79	78	55	.26	Reject
SU-Small	1327	90	82	91	95	81	83	.22	Reject
SU-Large	1609	86	92	94	80	91	80	.24	Reject
PAB-Small	1489	92	90	86	86	69	73	.32	Reject
PAB-Large	2508	92	93	88	87	78	75	.24	Reject
C-Small	1808	91	94	88	80	80	80	.24	Reject
C-Large	1602	94	95	88	89	90	81	.21	Reject
I-Small	843	93	93	79	83	79	82	.26	Reject
I-Large	1147	91	88	87	87	87	91	.09	Reject
GLE-Small	958	91	89	92	85	85	83	.14	Reject
GLE-Large	2336	86	83	95	88	79	75	.23	Reject

Table D-54

Percentage of Students in Each Achievement Category Who Said "True" to Item 54, "The instructor failed to make clear the relationship between this course and other courses".

Crit. Grp	N	Category 1	2	3	4	5	6	Cc	Decision
FK-Small	1465	14	22	25	27	41	44	.30	Accept
FK-Large	1977	9	24	27	22	47	0	.33	Accept
PT-Small	1707	13	18	25	30	34	54	.30	Accept
PT-Large	2640	15	18	24	34	30	0	.21	Reject
A-Small	1230	12	23	31	25	30	31	.27	Accept
A-Large	1872	14	20	23	28	48	51	.34	Accept
SU-Small	1429	12	24	14	27	34	38	.30	Accept
SU-Large	1714	18	17	8	32	25	31	.30	Reject
PAB-Small	1626	10	19	17	20	37	44	.37	Accept
PAB-Large	2604	7	19	19	22	29	32	.27	Accept
C-Small	1894	14	13	17	35	22	30	.28	Reject
C-Large	1703	18	4	13	10	21	32	.33	Reject
I-Small	886	12	13	28	25	28	32	.26	Accept
I-Large	1222	9	9	19	19	24	9	.24	Accept
GLE-Small	1053	25	28	12	19	19	33	.24	Reject
GLE-Large	2443	24	21	9	20	26	28	.17	Reject

Table D-55

Percentage of Students in Each Achievement Category Who Said "True" to Item 55, "Examination questions were frequently too detailed or picky".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1430	31	29	~~27~~	43	46	49	.22	Reject
FK-Large	2009	35	43	43	45	66	0	.22	Reject
PT-Small	1583	24	28	42	38	58	51	.32	Accept
PT-Large	2620	26	30	34	49	63	0	.34	Accept
A-Small	1069	25	52	41	30	28	10	.33	Reject
A-Large	1871	21	49	47	54	52	75	.42	Accept
SU-Small	1242	23	22	31	35	38	46	.23	Accept
SU-Large	1542	20	42	29	34	50	57	.34	Accept
PAB-Small	1392	26	25	36	37	34	48	.22	Reject
PAB-Large	2622	31	13	43	60	32	53	.37	Reject
C-Small	1692	22	18	34	24	41	46	.31	Accept
C-Large	1634	31	13	21	47	47	47	.36	Reject
I-Small	788	41	13	35	39	41	55	.31	Reject
I-Large	1114	19	39	22	45	41	55	.32	Reject
GLE-Small	873	13	50	22	27	57	48	.43	Reject
GLE-Large	2338	23	32	17	45	34	51	.30	Reject

Table D-56

Percentage of Students in Each Achievement Category Who Said "True" to Item 56, "I usually had no difficulty obtaining outside reading materials".

Crit. Grp	N	Category 1	2	3	4	5	6	C_c	Decision
FK-Small	1069	81	84	80	87	80	67	.15	Reject
FK-Large	1514	82	85	79	75	76	0	.13	Reject
PT-Small	1329	85	78	79	79	81	83	.10	Reject
PT-Large	1883	81	80	87	82	78	0	.13	Reject
A-Small	951	81	78	81	78	77	100	.08	Reject
A-Large	1385	82	76	89	79	74	85	.17	Reject
SU-Small	1162	85	81	84	79	76	83	.11	Reject
SU-Large	1287	81	80	88	80	79	76	.13	Reject
PAB-Small	1237	89	75	88	85	82	79	.19	Reject
PAB-Large	1929	86	90	86	79	79	74	.17	Reject
C-Small	1473	85	79	82	81	85	78	.10	Reject
C-Large	1228	86	87	84	89	80	75	.18	Reject
I-Small	739	83	84	81	74	81	71	.13	Reject
I-Large	952	90	71	76	76	80	83	.25	Reject
GLE-Small	700	82	95	76	78	87	78	.18	Reject
GLE-Large	1795	81	87	88	85	86	72	.22	Reject

Table D-57

Percentage of Students in Each Achievement Category Who Said "True" to Item 57, "Reading material (including text) were organized in a logical, orderly fashion".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1373	94	89	89	91	72	76	.28	Reject
FK-Large	1923	89	86	90	88	88	0	.06	Reject
PT-Small	1620	91	92	92	90	91	95	.05	Reject
PT-Large	2570	90	84	92	88	90	0	.12	Reject
A-Small	1150	93	88	91	88	86	100	.14	Reject
A-Large	1821	92	90	94	85	82	88	.16	Reject
SU-Small	1345	88	93	89	94	86	92	.13	Reject
SU-Large	1607	92	93	92	80	93	86	.20	Reject
PAB-Small	1510	93	93	90	87	82	83	.21	Reject
PAB-Large	2550	94	89	88	90	91	88	.10	Reject
C-Small	1824	90	97	92	89	87	88	.14	Reject
C-Large	1611	95	95	94	94	93	87	.16	Reject
I-Small	851	95	92	86	85	61	84	.32	Reject
I-Large	1162	94	87	89	90	89	91	.13	Reject
GLE-Small	973	92	97	91	93	91	83	.20	Reject
GLE-Large	2372	88	90	95	90	88	82	.16	Reject

Table D-58

Percentage of Students in Each Achievement Category Who Said "True" to Item 58, "There were too many topics to understand any of them well".

		Category							
Crit. Grp	N	1	2	3	4	5	6	C_c	Decision
FK-Small	1479	17	15	21	20	26	34	.18	Reject
FK-Large	1997	16	29	41	20	38	0	.31	Reject
PT-Small	1732	17	18	20	25	25	4	.14	Reject
PT-Large	2672	21	24	22	35	29	0	.16	Reject
A-Small	1238	11	21	32	28	17	12	.26	Reject
A-Large	1885	22	24	24	39	42	81	.35	Accept
SU-Small	1464	13	13	20	12	29	21	.21	Reject
SU-Large	1720	8	16	14	22	24	43	.36	Accept
PAB-Small	1634	12	10	22	27	23	25	.24	Reject
PAB-Large	2623	15	13	21	34	34	45	.32	Accept
C-Small	1944	12	10	12	20	15	31	.29	Reject
C-Large	1713	18	10	16	34	23	37	.30	Reject
I-Small	907	12	18	28	27	18	32	.25	Reject
I-Large	1222	14	19	14	24	28	18	.19	Reject
GLE-Small	1061	15	20	9	23	20	23	.17	Reject
GLE-Large	2480	17	19	18	30	24	33	.20	Reject